STUDYING THE ARTS IN LATE MEDIEVAL BOHEMIA

STUDIA ARTISTARUM
ÉTUDES SUR LA FACULTÉ DES ARTS DANS LES UNIVERSITÉS MÉDIÉVALES

48

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Studying the Arts in Late Medieval Bohemia

Production, Reception and Transmission of Knowledge

Edited by
OTA PAVLÍČEK

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Abbreviations

BAV	Biblioteca Apostolica Vaticana
BJ	Biblioteka Jagiellońska
GP	[Moses Maimonides] *Guide of the Perplexed*
IMHM	Institute of Microfilmed Hebrew Manuscripts
KMK	Knihovna pražské metropolitní kapituly
NK ČR	Národní knihovna České republiky
ÖNB	Österreichische Nationalbibliothek

OTA PAVLÍČEK

Notes on the Prague Faculty of Arts in 1348–1419*

This volume focuses on literary and scientific production related to the Faculty of Arts of the University of Prague in the Late Middle Ages. It also touches upon other centers of knowledge and intellectual activity closely related to this faculty. The aim behind the publication of this book is to connect researchers interested in contributing to an understanding of the production, transmission and reception of knowledge at Central European faculties of arts, with a particular focus on that in Prague, and a concentration on under studied or unknown sources. Since interest in these topics is on the rise, I intend to prepare further collaborative volumes with similar titles, which will provide further analyses of doctrines and currents as well as critical editions of Latin texts relevant to the central theme. It will be clear from this intention that the present volume does not claim a full coverage of all the subjects related to the study of the liberal arts in Bohemia or at the Prague Faculty of Arts. Although this is not a "Companion" volume that would summarize all we know about the literary and scientific production of the Prague faculty, it is the first multi-authored book focusing on this area. Before providing a content summary it is therefore appropriate to consider significant facts connected with the faculty, and to point out the essential sources indispensable for everyone working on the topic. Several remarks are also added on the dating of a Prague quodlibetal disputation and the doctrinal affiliation of one of the important Prague masters of arts, in order to expose some of the research possibilities in the topic[1].

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1 Concerning the institutional background of the Prague Faculty of Arts, in this overview I follow mainly the research published by František Šmahel. Readers interested in more detailed information about the institutional processes will find it in Šmahel's extensive study on the topic, the importance of which is underlined by the fact that it has appeared, in different modifications, four times. For the English version with footnotes, see F. Šmahel, "The Faculty of Liberal Arts 1348–1419", in F. Šmahel, *Die Prager*

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*

The University of Prague was founded by the Bohemian and German King (and later Emperor of the Holy Roman Empire) Charles IV in 1348, and was the first university north of the Alps and east of the Rhine. Since Charles IV made Prague his seat and thus the capital of his large dominion, the investments he made in this city also supported his political interests. The University, founded after the examples of Paris and Bologna, was among the most important of these improvements[2].

The individual faculties of the *studium generale* functioned in an improvised manner for many years, their institutional and pedagogic development being gradual. Concerning the Faculty of Arts, this is attested by the fact that the first official information regarding a promoted master of arts, Henry of Libšice (Jindřich z Libšic in Czech), comes only from 1359. Initially, the faculty did not even have a dean. The first dean was most probably Henry of Embecke called Nanexen, who held this post in 1367. The first dean elected according to the rules accepted in 1366, however, was Nanexen's successor, the Parisian master of arts and Prague canon Fridman of Prague, chosen in 1368[3].

Another sign of the successive institutional development is the first college, the Carolinum, founded by Emperor Charles IV only in 1366, perhaps in reaction to the foundation of rival universities in Vienna and Cracow. The college was intended for twelve masters of liberal arts who were to teach at the Faculty of Arts, while two had to study at the Faculty of Theology. According to the principles laid down by Charles IV, most senior masters would move from this college to vacated posts of canons of the All Saints Chapter at Prague Castle, which in turn meant that younger masters could find their living in the vacated places in the Carolinum. By founding the Carolinum and setting these principles, the emperor materially secured some of the professors at the Faculty of Arts, as well as several students who lived with the masters. A significant number of other colleges and teaching halls joined this basic infrastructure in the course of the fourteenth and fifteenth centuries. In consequence, according to František Šmahel, in this sense the Prague Faculty of Arts remained unsurpassed in Central Europe until the middle of the fifteenth century[4].

Universität im Mittelalter / The Charles University in the Middle Ages. Gesammelte Aufsätze / Selected Studies, Leiden / Boston, Brill, 2007, p. 213–315. Some of the related phenomena were treated by Šmahel in further studies published in the same volume and elsewhere, for example in F. Šmahel, *Alma Mater Pragensis. Studie k počátkům Univerzity Karlovy* [*Alma Mater Pragensis. Studies on the Beginnings of Charles University*], Praha, Univerzita Karlova v Praze – Nakladatelství Karolinum, 2016.

2 For the beginnings of the University of Prague see, for example, F. Šmahel, "Die Anfänge der Prager Universität. Kritische Reflexionen zum Jubiläum eines *Nationalen Monumentes*", in Šmahel, *Die Prager Universität im Mittelalter*, p. 3–50, who mentions older literature.

3 See *Statuta et Acta rectorum Universitatis Carolinae Pragensis 1360–1614*, eds. F. Šmahel, G. Silagi, Praha, Univerzita Karlova – Nakladatelství Karolinum, 2018, p. cx–cxi.

4 Šmahel, "The Faculty of Liberal Arts 1348–1419", p. 215, F. Šmahel, "Scholae, collegia, et bursae universitatis Pragensis. Ein Beitrag zum Wortschatz der mittelalterlichen Universitäten", in Šmahel, *Die Prager Universität im Mittelalter*, p. 85–102 and M. Svatoš, "The Studium Generale", in I. Čornejová, M. Svatoš, P. Svobodný (eds.), *A History of Charles University 1348–1802*, vol. I, Prague, Charles University in Prague, 2001, p. 39–55.

The production of knowledge can scarcely be imagined without books. It is no surprise that in Prague, the university libraries were connected with colleges where the books were accessible to a broader range of scholars. Additional books were available to individuals through their personal libraries. The old catalogs of the collections of some of these libraries are a valuable source for our understanding of the books available in Prague, as well as of those written by Prague masters. For example, the catalogs are the only sources that inform us about several commentaries on Aristotle's treatises prepared by or at least ascribed to John Hus[5]. These lists, which were for a long time available only as facsimiles or the manuscripts themselves[6], were made accessible in a critical edition in 2015[7]. Notably, some of the manuscripts mentioned in the catalogs can be identified in a Prague or other library, although the majority are now lost[8]. The libraries which house a crucial number of the codices relevant to the production of the Prague Faculty of Arts are the National Library of the Czech Republic, the Prague Castle Archive (which now houses the collection of the Metropolitan Chapter Library) and the National Museum Library[9]. Except for the Metropolitan Chapter Library manuscripts, many of these sources are accessible online at Manuscriptorium.com. It should be noted that these collections include books formerly belonging to the university colleges or to individual masters who bequeathed them, for example, to the Metropolitan Chapter of which they were canons[10]. Due to the origins of scholars at the University of Prague, their migration and other reasons, a large number of the relevant codices are now stored in German libraries, in Austria and elsewhere.

The aforementioned Master Fridman of Prague was elected dean according to the statutes, which in turn means that as early as in 1368 the faculty had at its disposal at least basic rules regarding its functioning. Deans had an obligation to keep records in two books of the faculty, the *Communis liber facultatis* and the *Registrum ordinis graduatorum in artibus*. While the former served for recording information on the life of the faculty and for individual new statutes, the latter comprised infor-

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5 See O. Pavlíček, "Jan Hus as a Philosopher. The Topic of Universals in Two Theological Contexts of His Sentences Commentary (Super IV Sententiarum I, dist. 19 and 33)", in *Przegląd Tomistyczny*, 24 (2018), p. 547–567 (in particular p. 550–551).

6 J. Bečka, E. Urbánková, *Katalogy knihoven kolejí Karlovy university* [Catalogs of Libraries of Colleges of Charles University], Praha, Národní Universitní knihovna v Praze, 1948.

7 See *Catalogi librorum vetustissimi Universitatis Pragensis / Die ältesten Bücherkataloge der Prager Universität*, eds. Z. Silagiová, F. Šmahel, Turnhout, Brepols, 2015.

8 Cf. *Catalogi librorum vetustissimi Universitatis Pragensis*, p. lxxxiii–lxxv.

9 For the National Library collections, see J. Truhlář, *Catalogus codicum manu scriptorum latinorum qui in C. R. Bibliotheca publica atque Universitatis Pragensis asservantur*, 2 vols, Praha, Regiae Societatis Scientiarum Bohemicae, 1905–1906; for the Metropolitan Chapter Library, see A. Patera, A. Podlaha, *Soupis rukopisů knihovny metropolitní kapitoly pražské* [Catalog of Manuscripts of the Prague Metropolitan Chapter Library], 2 vols, Praha, Česká akademie věd a umění, 1910–1922; and F. M. Bartoš, *Soupis rukopisů Národního Musea v Praze* [Catalog of Manuscripts of the National Museum in Prague], 2 vols, Praha, Melantrich, 1926–1927 for the National Museum Library.

10 Cf. I. Hlaváček, *Středověké soupisy knih a knihoven v českém středověku* [Medieval Catalogs of Books and Libraries in the Czech Middle Ages], Praha, Univerzita Karlova, 1966, I. Hlaváček, *Knihy a knihovny v českém středověku* [Books and Libraries in the Czech Middle Ages], Praha, Karolinum, 2005.

mation on scholars who graduated at, or whose titles were nostrified by, the faculty. Modern scholarship, however, does not work with the original two books, but with the *Liber decanorum*, the Book of Deans of the Prague Faculty of Arts, which originated in 1389 and may be understood to be the most important source not only for understanding what was happening at the faculty, but also for tracing the academic careers of individual scholars. The entries from 1366–1389 were copied from the two earlier books into the Book of Deans in 1389. The statutes were rearranged and edited as part of this process, but the changes to their content may usually be understood as only cosmetic. The person responsible for the establishment of the *Liber decanorum* was the then dean, Master John Helcopius, who was, however, excommunicated from the faculty shortly thereafter, perhaps in connection with the acquisition of the silver seals of the faculty and the dean's office. The revision of the statutes, as well as the copying of the previous two books into the *Liber decanorum,* was thus undertaken by Helcopius's successor in the office of dean, Master Matthias of Legnica, in 1390[11].

The manuscript of the *Liber decanorum* is now lost, as along with other valuables it was stolen from the University Archive by the Nazis at the end of the Second World War[12]. Fortunately, photographs of the codex were made shortly before the war thanks to Václav Vojtíšek, which allowed the publication of a facsimile in 1983[13]. While there is an edition of the *Liber decanorum* available, this was published in 1830 and as such does not meet today's scientific standards[14], although it is easily accessible in the Czech Medieval Sources Online database[15], part of the MEMORI project[16]. Thanks to František Šmahel and Gabriel Silagi, a new edition of the statutes of the faculty has been published[17]. This recent development divides the *Liber decanorum* into two books again for modern researchers, while for the deans' records on events at the faculty it is still necessary to study the 1830 edition.

*

The two deans linked to the creation of the *Liber decanorum* and the revision of the statutes may serve as examples of our insufficient understanding of the philosophical and scientific production of the Prague Faculty of Arts. With regards to John Helcopius, who belonged to the Polish university nation, we know the

11 See Šmahel's introduction in *Statuta et Acta rectorum Universitatis Carolinae Pragensis*, p. cx–cxix.

12 For details, see K. Kučera, M. Truc, *Archiv University Karlovy. Průvodce po archivních fondech* [Archive of Charles University. A Guide to the Archive Funds], Praha, Universita Karlova, 1961, p. 171–179 and K. Hruza, "Der deutsche Insignien- und Archivalienraub aus der Prager Universität", in *Bohemia*, 49 (2008), p. 349–411.

13 *Liber decanorum facultatis philosophicae Universitatis Pragensis ab anno Christi 1367 usque ad annum 1585*, Pragae, Universitas Carolina, 1983.

14 *Liber decanorum facultatis philosophicae Universitatis Pragensis ab anno Christi 1367 usque ad annum 1585*, pars I–II, eds. A. Dittrich, A. Spirk, Pragae, Typis Joan. Nep. Gerzabek, 1830–1832.

15 Accessible from: https://cms.flu.cas.cz/en/researchers/czech-medieval-sources-on-line.html.

16 Accessible from: https://memori.lib.cas.cz.

17 *Statuta et Acta rectorum Universitatis Carolinae Pragensis*, p. 227–275.

essential dates of his academic career between Vienna, Prague and Leipzig. We also have a basic acquaintance with the titles of several of his works, which, as far as I know, were never subjected to scrutiny or published[18]. It is notable that according to a manuscript note, this master was known among his Prague colleagues as a partisan of a theory of supposition promoted by some Oxford scholars[19]. As explained by an anonymous text in MS Erfurt, Universitätsbibliothek, Dep. Erf. CA. 4° 253, fol. 29r, there are four main opinions concerning supposition, in all of which the critical role is played by the simple supposition (*suppositio simplex*): First is the *opinio antiquorum*, second is the opinion preferred by Thomas Maulfeld ("Maelfelt"), third is the position of Buridan and Marsilius of Inghen, and the fourth is the *opinio modernorum* held by Master Helcopius and *communiter* by Oxford scholars ("[…] et illa opinio est magistri Helcopii et communiter oxoniensium […]."). Thus we now have at least the basic direction of Helcopius's doctrinal orientation[20].

Matthias of Legnica, a member of the Polish university nation who was a doctor of theology by 1400, is a similar case[21]. Among the works connected with his activities at the Faculty of Arts are the materials he prepared as a *quodlibetarius* for the annual quodlibetal disputations which were among the main events of the whole University of Prague[22]. Here too, one does not need to go far to make interesting discoveries or clarifications, as we may add further details to his academic career. With some reservations, František Šmahel dates Matthias of Legnica's *quodlibet* to 1399, a dating driven by his hypothesis that the presidency of the quodlibets rotated according to the university nations, i.e. that in each four year period the *quodlibet* was successively presided over by members of all four nations. By contrast, Vilém Herold preferred around 1394 as the date of Matthias of Legnica's *quodlibet*, perhaps basing this on the dating provided by Josef Tříška, who found the manuscript

18 J. Tříška, *Životopisný slovník předhusitské pražské univerzity 1348–1409* [Biographical Lexicon of the Pre-Hussite Prague University 1348–1409], Praha, Univerzita Karlova, 1981, p. 252.

19 I also infer the Prague origin of the text from an example used by its author. See MS Erfurt, Universitätsbibliothek, Dep. Erf., CA. 4° 253, fol. 29r: "[…] sequitur quod eadem res esset Prage et Parisiis corruptibilis et incorruptibilis."

20 The catalog entry related to this manuscript is rather incomplete. The context of the note on the supposition, including Wyclif's treatise on logic and Stephen of Páleč's *quaestio* on the archetypal world, might signify that its author was a Prague partisan of John Wyclif's thought, for example Stephen of Páleč himself. Cf. W. Schumm, *Beschreibendes Verzeichnis der Amplonianischen Handschriften-Sammlung zu Erfurt*, Berlin, Weidmannsche Buchhandlung, 1887, p. 504–505.

21 For the basic dates of his career between Prague and Cracow, see Tříška, *Životopisný slovník předhusitské pražské univerzity 1348–1409*, p. 364.

22 On the Prague quodlibetal disputations, see J. Kejř, *Kvodlibetní disputace na pražské universitě* [Quodlibetal Disputations at the University of Prague], Praha, Universita Karlova, 1971, F. Šmahel, "Die Verschriftlichung der Quodlibet-Disputationen an der Prager Artistenfakultät bis 1420", in Šmahel, *Die Prager Universität im Mittelalter*, p. 359–386 and O. Pavlíček, "Parisian and Prague *Quodlibeta* Compared: The Transfer of the Quodlibetal Disputation between the Faculties and Jerome of Prague's Struggle against the Thematic Limitations Imposed on the Faculty of Arts", in E. Jung (ed.), *What is New in the New Universities? Learning in Central Europe in the Late Middle Ages (1348–1500)*, Warszawa, Wydawnictwo IFiS PAN, 2018, p. 325–356.

containing the *quodlibet* and, with some reservations, also dated it to 1394[23]. The dating of the disputation is of great importance to the dating of works originating in connection with the *quodlibet*, particularly the *quaestiones* of individual participants in this disputation.

For clarification concerning the dating, our starting point will be the explicit of the manuscript containing the relevant texts, i.e. MS Stralsund, Stadtarchiv, Hs 1067 (former shelf-mark NB 23), fol. 278r, where, according to Tříška, the scribe wrote: "Et sic est finis disputacio(nis) de quolibet in artibus reverendi magistri Machye de Legenycze, bacalarii formati in sacra theologia, conscripte per Nycolaum Roden, studentem Pragensem, finite in die Cinerum anno domini milesimo CCCCXVII°[24]." It thus seems clear that the scribing was finished on Ash Wednesday 1417 by the then student Nicholas Roden (i.e. probably of Rügen). Three Nicholas Rodens are known in connection with the University of Prague; two, however, obtained their titles at the Faculty of Law as early as in 1377 and 1384 respectively. Therefore, our Nicholas Roden was likely a student from the Saxon university nation who successfully passed the bachelor's examination on 15 December 1397. In 1417 he was most likely at least a bachelor of arts. Moreover, it is unlikely that he, as a member of the Saxon nation, would study in Prague in 1417 rather than in Leipzig[25]. The information provided by the explicit about Matthias of Legnica is no less questionable, as according to the Prague University statutes, Matthias became licentiate in theology on 23 August 1397 at the latest. In the explicit allegedly from 1417, however, he is mentioned as bachelor *formatus,* which is a degree lower than that of *licentiatus* which he already held in 1397[26]. Another important source is the paper used by Nicholas Roden, as an analysis of filigranes revealed that the same or very similar watermarks appear in manuscripts originating in 1398 and 1400[27]. All of these pieces of information lead me to believe that the Stralsund manuscript originated before 23 August 1397. How, then, to explain the scribe's dating to 1417? As also attested by the style of the scribe's entry, which reads "milesimo CCC CXVII°" with the long break after "CCC", the dating in the explicit is likely a scribal error. Nicholas Roden probably wrote down CCC and then mistakenly swapped the sequence of "C" and "X", as the explicit should read "milesimo CCCXCVII°". Our analysis thus shows that the manuscript was already finished on the Ash Wednesday 1397, i.e. on 7 March of that year. In consequence, Matthias of Legnica's *quodlibet* could have taken place in 1397 at the earliest, more precisely at the beginning of January that year as prescribed for this disputation by

23 V. Herold, *Pražská univerzita a Wyclif* [Prague University and Wyclif], Praha, Univerzita Karlova, 1985, p. 225 and J. Tříška, *Starší pražská univerzitní literatura a karlovská tradice* [Older Prague University Literature and the Charles Tradition], Praha, Universita Karlova, 1978, p. 141–146.

24 Tříška, *Starší pražská univerzitní literatura a karlovská tradice*, p. 141.

25 Tříška, *Životopisný slovník předhusitské pražské univerzity 1348–1409*, p. 416.

26 *Statuta et Acta rectorum Universitatis Carolinae Pragensis*, p. 45.

27 I am indebted for detailed information on the watermarks to Dr. Matthias Eifler, Dr. Werner Hoffmann and Dr. Christoph Mackert of the Universitätsbibliothek Leipzig, who are preparing a new catalog of the Stralsund manuscript collection.

the statutes[28]. Given that we know the *quodlibetarii* for 1395 and 1396, this *quodlibet* took place either prior to 1395, or, more likely, in 1397.

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It is clear from the foregoing that the Prague Faculty of Arts was international, and served not only to educate the local population but also people from the whole Holy Roman Empire. After the pattern of the University of Paris, it included four university nations, specifically the Bavarian, Bohemian, Polish and Saxon, to which teachers and students belonged by their place of origin. The *Liber decanorum* informs us of graduates from almost the whole of Europe. In 1384–1386, more than 200 bachelors graduated each year. František Šmahel estimates that more than eighteen thousand students studied at the Faculty in 1367–1409. By 1419, the Faculty had promoted 892 masters of arts[29]. Before being able to graduate enough masters of its own who could teach, however, the Faculty had to rely on scholars from other lands and universities. Initially, masters who obtained their titles in Paris taught in Prague, and there were also important scholars from Erfurt who became teachers there[30].

Among the most significant Prague professors at the Faculty of Arts in the 1360s was Henry Totting of Oyta, who had a large number of students. Many of these later became prominent in Central European intellectual history (inter alia Matthew of Cracow, Conrad of Soltau, John of Holland), and had many students of their own, some of whom became famous for their intellectual activity – such as Nicholas Jawor who later exercised important functions in Heidelberg[31]. After his period in Prague, Totting spent some time studying theology in Paris and returned for a short time to Prague. He left for good to join the University of Vienna, to which his colleague Henry of Langenstein accompanied him[32]. Henry Totting also left Prague in consequence of his conflicts with Vojtěch Raňkův of Ježov (Adalbertus Ranconis de Ericinio), a theologian and the first Czech rector of the University of Paris (1355), who in Prague accused Henry of heresy[33]. As can be seen, interesting scholars were coming to the Faculty of Arts, as well as leaving it to find positions at other universities by which they, among others, contributed to the transmission

28 *Statuta et Acta rectorum Universitatis Carolinae Pragensis*, p. 248. I have reached this conclusion together with Dr. Lukáš Lička.

29 Šmahel, "The Faculty of Liberal Arts 1348–1419", p. 250–257.

30 Šmahel, "The Faculty of Liberal Arts 1348–1419", p. 213–220.

31 Cf. on him J. Petrášek, *„Meide die Häretiker". Die antihussitische Reaktion des Heidelberger Professors Nikolaus von Jauer (1355–1435) auf das taboritische Manifest aus dem Jahr 1430*, Münster, Aschendorff, 2016.

32 For Henry Totting of Oyta, see A. Lang, *Heinrich Totting von Oyta. Ein Beitrag zur Entstehungsgeschichte der ersten deutschen Universitäten und zur Problemgeschichte der Spätscholastik*, Münster i. W., Aschendorff, 1937; cf. Henricus Totting de Oyta, *Schriften zur Ars vetus*, ed. H. Berger, München, Bayerische Akademie der Wissenschaften, 2015, p. 7–31.

33 For Vojtěch, see J. Kadlec, *Leben und Schriften des Prager Magisters Adalbert Rankonis de Ericinio. Aus dem Nachlass von Rudolf Holinka und Jan Vilikovský*, Münster, Aschendorff, 1971.

of knowledge. Their final destinations included, for example, Cologne, Cracow, Heidelberg, and Vienna but also Paris or Oxford, as was the case for John Sharpe who became an important Oxford master and was one of the Oxford realists[34].

An important chapter in the history of the Prague Faculty of Arts is formed by the exodus of scholars from the non-Bohemian university nations due to the Kuttenberg Decree, issued by the Bohemian King Wenceslas IV in 1409. This Decree modified the ratio of votes between the *nationes*; after the modification, the Bohemian home nation had three votes, whereas the other nations had only one vote together. The non-Bohemians, mostly Germans, decided rather to leave the university than to accept the new ratio, something which led, among other things, to a strengthening of other Central European universities, particularly that in Leipzig[35]. Some scholars, however, went elsewhere; Leonard Hesselstorper, for example, was accepted as a Prague bachelor in Paris in 1410, where he became a master and teacher, had his Polish students at the Faculty of Arts and played a role in its structures[36].

According to a comparison between the curriculum at the Faculties of Arts in Prague and Paris made by František Šmahel, the set of obligatory books was nearly the same in 1366, although the Parisian inspiration was adjusted and adapted to Prague needs[37]. The first Prague teachers coming from Paris brought with them commentaries composed by important masters from that city and elsewhere, including John Buridan, which they then used for teaching purposes. Expositions of the required books were subject to rules that were probably set in reaction to expanding abuses among the Prague teachers. As early as in 1367, masters could teach based on the works of other scholars only if these works had been composed by noted masters of the Prague, Parisian or Oxford Universities. Such *pronuntiationes* had to be verified before teaching and, if necessary, corrected. Bachelors were not allowed to produce their own lectures. If they lectured on Aristotle's treatises and other difficult books, they had to follow the lectures prepared by masters of the uni-

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34 For Sharpe, see A. Conti, "Johannes Sharpe", in E. N. Zalta (ed.), *The Stanford Encyclopedia of Philosophy*, Fall 2016 Edition), accessible from: https://plato.stanford.edu/archives/fall2016/entries/sharpe. The thought of the so-called Oxford realists also influenced philosophical and logical writings originating in Late Medieval Bohemia. Robert Alyngton's treatise on Aristotle's *Categories* was read and used by Jerome of Prague, and Alyngton's name was known to the anonymous commentator of a treatise known as *Collecta de probatione propositionum*. See *Commentarius ad Collectam de probatione propositionum*, MS Prague, NK ČR, VIII F 16, fol. 131bis r, where the commentator writes "sed hic est sciendum secundum Magistrum Robertum Alingtonem, quod significatum secundarium superaddit super hec tercia significata secundaria, […]." Cf. O. Pavlíček, "Two Philosophical Texts of Jerome of Prague and his Alleged Designation of Opponents of Real Universals as Diabolical Heretics", in Z. V. David, D. R. Holeton (eds.), *The Bohemian Reformation and Religious Practice* 8, Praha, Filosofia: Filosofický časopis, 2011, p. 70–73.

35 To a lesser extent, members of the non-Bohemian nations departed Prague earlier in consequence of struggles for places in the university colleges. For these topics, see M. Nodl, *Das Kuttenberger Dekret von 1409. Von der Eintracht zum Konflikt der Prager Universitätsnationen*, Köln / Weimar, Böhlau Verlag, 2017.

36 See *Liber procuratorum nationis Anglicanae (Alemanniae) in Universitate Parisiensi ab anno 1406 usque ad annum 1466*, t. 2, eds. H. Denifle, E. Chatelain, Parisiis, H. Didier, 1937, col. 73, 82, 101–102, 110, 116–117.

37 Šmahel, "The Faculty of Liberal Arts 1348–1419", p. 232–233.

versities mentioned above, the reliability of which had to be confirmed by a Prague master[38]. Moreover, the statutes banned abbreviating Buridan's and other masters' *quaestiones* for teaching purposes[39]. These prescriptions provide us with a basic idea of which currents were present in Prague. Since the statutes limited only the sources used for the teaching of required books, however, the depth of these currents was not limited to only the masters of the Prague, Parisian and Oxford Universities, although at this time the intellectual production of these three universities formed an essential part of European discussions at Faculties of Arts. We may add that around the mid-fifteenth century, works by John Versor were very popular at the Prague Faculty of Arts[40].

The Prague reception of Buridan and Versor, two Parisian masters, had an important counterpart in the reception of the doctrines of the Oxford realist philosopher and theologian John Wyclif. His thought was positively received mainly by certain scholars of the Bohemian university nation, who perhaps connected Wyclif's realism with their efforts to differentiate from the nominalist currents at the Faculty. As shown by Harald Berger in this volume, however, some of Wyclif's works were read and used by non-Bohemian Prague masters as well[41]. Some of Wyclif's opinions were, though, condemned by the Church, and his thought thus smelled of heresy. The reception of parts of Wyclif's philosophical and closely related theological thought thus provoked opposition from some Prague scholars, mostly from the other three nations. This induced tensions between the masters which led to accusations of heresy against several of the so-called Bohemian "Wycliffites", such as Stanislas of Znojmo, John Hus, Jerome of Prague, John of Jesenice and Matthias Knín. Neither the haze of heresy hanging over the University of Prague, nor the Church juridical proceedings with the representatives of the "Wycliffites", disappeared with the departure of non-Bohemians scholars from Prague in 1409. On the contrary, the movement connected to the Church reform, which was then in the majority at the Faculty of Arts, radicalized along with its leader John Hus. Due to the struggles over Hus's Wycliffite ecclesiology, the Faculty of Theology disintegrated; Masters of the Prague Faculty of Arts John Hus (†1415) and Jerome of Prague (†1416) were burned at stake by the Council of Constance for these and other reasons[42].

The Prague Faculty of Arts did not cease to exist even after the Council of Constance suspended the privileges of the University of Prague in 1416, or when

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38 *Statuta et Acta rectorum Universitatis Carolinae Pragensis*, p. 235–236.

39 *Statuta et Acta rectorum Universitatis Carolinae Pragensis*, p. 255.

40 Cf. F. Šmahel, "Paris und Prag um 1450 Johannes Versor und seine böhmischen Schüler", in Šmahel, *Die Prager Universität im Mittelalter*, p. 440–464 and S. Sousedík, *Philosophie der frühen Neuzeit in den böhmischen Ländern*, Stuttgart / Bad Cannstatt, Frommann-Holzboog 2009, p. 13–33.

41 For the mechanism of reception of Wyclif's thought together with further literature, see O. Pavlíček, "Wyclif's Early Reception in Bohemia and His Influence on the Thought of Jerome of Prague", in P. Hornbeck, M. Van Dussen (eds.), *Europe after Wyclif*, New York, Fordham University Press, 2017, p. 89–114.

42 For literature and more information on John Hus and the movement, see F. Šmahel, O. Pavlíček (eds.), *A Companion to Jan Hus*, Leiden / Boston, Brill, 2015.

the Chancellor of the University, Archbishop Conrad of Vechta, did not allow the organization of master's examinations at the beginning of 1417. It still existed shortly thereafter, when it adopted Utraquism, and the school became a "heretical university"[43]. However, on one occasion in 1419, no one showed up to take the bachelor's examinations. At the next possible date, the bachelor's examinations "ex certis [et] rationibus <et> causis" once again did not take place. The decline of the Faculty may be traced in the preceding years. In 1417 the assembly of masters elected John of Řiště (Iohannes Rzist) as a *quodlibetarius* for 1418, but the disputation "ex quibusdam causis" was not organized. The same master wanted to organize the disputation in 1419, but neither did this *quodlibet* take place, due to the onset of the Hussite Wars and associated disorders. Under these circumstances, the Faculty interrupted its activity for several years. Even though it was restored after the riots, it never again attained the international significance it had before 1409[44].

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The present studies – which aim to contribute to the understanding of studying the arts in Late Medieval Bohemia with regards to the production, reception and transmission of knowledge – may be divided into three groups by their primary focus within the overall theme.

The first two show that philosophy and Aristotle were studied in Prague even outside the Arts Faculty. Milan Žonca focuses on the Prague Jewish context and modalities of the Jewish approach to philosophy, on the example of Menaḥem ben Jacob Shalem. Thanks to this study, also based on unpublished Hebrew material, the reader will learn about the doctrines of a Jewish scholar as well as about the production, transmission and reception of knowledge within the Jewish Ashkenazi. It is striking that in Late Medieval Prague there was a Jewish philosophical tradition parallel to that of the Faculty of Arts, dealing with similar topics as the Latin tradition at the Faculty.

The following study by Hana Šedinová is an important contribution to the creation of a Latin lexicon in medieval Bohemia, more precisely in the *Glossary* of Bartholomew of Chlumec (Bartholomaeus de Solencia) who is known under the nickname of Claretus. The author shows, in the context of the reception of Aristotle's zoological treatises by scholars such as Michael Scot and Thomas of Cantimpré, the ways through which Claretus took over the different names of animals and their definitions for his *Glossary*. At the same time, she points out that due to erroneous interpretations in the whole translation string, many mistakes occurred concerning the names, character, appearance or behavior of the described animals. Hana Šedinová's analyses are also documented by the remarkable medieval depictions of animals described in the *Glossary* which have no counterpart in reality.

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43 See J. Kejř, "Deklarace pražské university z 10. března 1417 o přijímání pod obojí a její historické pozadí [Declaration of Prague University of 10th March 1417 on the Communion Sub Utraque and its Historical Background]", in *Sborník historický*, 8 (1961), p. 133–156. Cf. F. Šmahel, "Die Prager Universität und der Hussitismus", in Šmahel, *Die Prager Universität im Mittelalter*, p. 172–195.

44 See *Liber decanorum facultatis philosophicae Universitatis*, pars I, p. 442–452.

The next two studies focus on the importance of relations between the production of knowledge at the Prague Faculty of Arts and that of other Late Medieval Arts Faculties in Central Europe. In the first paper, Krystyna Krauze-Blachowicz deals with relations between the Faculties in Prague and Cracow concerning the history of speculative grammar at the end of the fourteenth and in the fifteenth centuries. The author recalls the significance of the Prague Faculty for that of Cracow, many of whose teachers obtained their education in Prague, which went hand in hand with an extensive transmission of knowledge to the north-east of Prague. Dealing with the intense reception of modistic treatises in Prague and Cracow, she shows that the reception and transmission of similar texts linked to the education of the Cracow professors created a parallel tradition concerning the approach to grammar at the two faculties.

The second study of this block has its starting point in the compendium *Parvulus Philosophiae Naturalis* composed by Peter of Dresden, most probably for his teaching activities in Prague. As Annemieke Verboon documents, thanks to its composition, the treatise was widely received at other Central European Faculties of Arts and other schools, and is extant in dozens of copies. It may thus be considered a medieval "bestseller". The author also deals with the content of the treatise, which provides an Albertist view on the internal senses. In Cologne, an anonymous master taught according to this treatise, while a Thomist approach towards the topic was taught by Lambertus de Monte, a significant Cologne master. The reader will thus learn about the reception of the Prague treatise in the context of the Cologne Wegestreit, and important pieces of information on doctrinal conflicts, including the solution of the question as to why non-human animals cannot imagine unreal things.

The main direction of the third and most extensive part of the volume is an understanding of the doctrines, debates, and sources present at the Prague Faculty of Arts. Its first contribution links to the two preceding, as it deals with Peter of Dresden's grammatical treatise *De congruitate grammaticali*. Petra Mutlová summarizes her knowledge on Peter of Dresden's life and work and on other members of the so-called Dresden school in Prague, including their part in teaching at the Faculty of Arts. The study then deals with Peter's treatise *De congruitate grammaticali*, providing an analysis of its content including a contextualization into other grammatical treatises available at the University of Prague in the Late Middle Ages, such as Thomas of Erfurt's treatise *Grammatica speculativa*. As an appendix, she provides a valuable critical edition of Peter's treatise.

In the next study, Pavlína Cermanová deals with the circulation of pseudo-Aristotle's treatise *Secretum secretorum* in the scholarly centers of the medieval Czech Lands, including the University of Prague and its Faculty of Arts. She introduces the reader to the presence of this medieval "bestseller" in institutional libraries, on the basis not only of currently preserved, and sometimes newly-tracked, manuscripts, but also of the old colleges' library catalogs. Manuscripts, fragments of varying size, and short excerpts written in the margins of manuscripts for immediate use or out of curiosity bear witness to this treatise. The study also provides insight into the possession and use of the *Secretum secretorum* by Bohemian scholars, and notes the importance of its commentary tradition, which extended to other universities such as Leipzig and Cracow.

In the Bohemian context, Master John of Münsterberg is known mostly for his stance on universals, and the polemics in the matter of universals which he had with another master of the Faculty of Arts, Stephen of Páleč[45]. However, Monika Mansfeld presents him in the broader context of his academic career and work, focusing on his commentary on the *Metaphysics*. This extant work contains 255 *quaestiones,* which is a very high number given that the corresponding commentaries by Buridan and Marsilius of Inghen contain 96 and 101 *quaestiones* respectively. The author also deals with the successive writing up of the commentary, as it seems that it was composed over many years. It is striking that the commentary was written down as a *reportatio* sometime in 1407–1409 by the Prague bachelor Leonard Hesselstorper who, as already mentioned above, later moved to Paris. This chapter is completed by a list of the *quaestiones* in Münsterberg's commentary.

A companion of John of Münsterberg was Helmold of Zoltwedel, who was active in Prague for a similarly long time and moved to Leipzig in 1409, where he became rector of the university, succeeding John in this function. Harald Berger's study presents the life and work, a catalog of works, and the doctrinal affiliation of this virtually unknown yet important master. One of the more remarkable passages of this paper is a list of the sources used by Helmold for his most extensive work, his *quaestiones* on logic. As shown by the author, Helmold used the leading authorities in philosophical and theological literature of his time and place: Duns Scotus, Hugo, Marsilius of Inghen, Thomas Maulfeld, William Ockham, John Buridan, Albert of Saxony, John of Holland, William Buser, John Wyclif, Walter Burley, Richard Billingham, Richard Brinkley, John Dumbleton, William Heytesbury, Richard Kilvington and Conrad of Soltau. Berger adds to his study a critical edition of one of Helmold's *quaestiones*, more precisely a *quaestio* on proofs of propositions in which he traces, among other things, John Wyclif's influence.

The study by Miroslav Hanke and Ota Pavlíček considers the teaching of logic at the Prague Faculty of Liberal Arts, taking as its starting point the issue of the use of sophisms at this faculty. The paper then deals with the debate on universals between Blasius Lupus and Jerome of Prague, two masters of liberal arts of the Bohemian university nation with different doctrinal backgrounds, and proposes a new interpretation of the structure of the discussion. The authors show, among other things, that some of Jerome's texts are not extant in the wording in which they were known in the Middle Ages, and that other texts related to the polemic are extant in several versions, although hitherto, some have been considered as connected to other events. The final part of the study is devoted to an analysis of a part of the debate containing three sophistical arguments. On the basis of rare material for the understanding of Jerome's approach towards logic, it is shown how Jerome defended his philosophical realism in his replies to the less realist Master Lupus in the logical argumentation, which also includes Trinitarian parallels. A critical edition of the *Argumenta sophistica* is included in this paper as an appendix.

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45 Cf. J. Sedlák, "Filosofické spory pražské v době Husově [Philosophical Disputes in the Time of Jan Hus]", in J. Sedlák, *Studie a texty k náboženským dějinám českým* 2, Olomouc, Nakl. Matice Cyrilometodějské, 1915, p. 207–208.

The following article introduces the reader to the study of meteorology, including its astrological context and a comparison between the university milieux in Prague and Cracow. Barbora Kocánová deals with different treatises on weather forecasting, focusing on the manuscript evidence. On this basis, she shows that the tradition of weather forecasting at the the University of Prague was lesser in extent than that of Cracow, which she attributes to a less developed tradition of astronomy and astrology at the Prague Faculty of Arts. Among other things, she presents the content of three extant manuscripts conserved in Prague, which contain the most important Prague collections of texts on weather forecasting.

The penultimate contribution deals with the study of optics at the Prague Faculty of Arts, with an emphasis on the Prague quodlibetal disputations. Since this specific topic is literally unknown, Lukáš Lička presents his pioneering research on optics in Bohemia as well as on the quodlibets. The study is also critical to our understanding of the doctrines of a significant master of the Prague Faculty of Arts, John of Borotín, whose quodlibetal *quaestio* is appended to the study in the form of a critical edition. Among the seemingly minor findings, one can highlight the distinction between the *modus antiquus* and the *modus modernus* in composing the *quaestiones* in a Prague context, and the discovery of a probably new Prague *quodlibet*, on the description of which we are now working together.

Last but not least, the volume contains a study on astronomy by Alena Hadravová and Petr Hadrava. After a brief introduction to the topic, the authors deal with the significant Czech astronomer John Šindel, also active at the Faculty of Liberal Arts, and his work *Canones pro eclipsibus Solis et Lune*. The study reveals Šindel's sources, and confirms that former members of the Faculty of Arts maintained their international scientific contacts even after 1409 and produced important pieces of knowledge. Perhaps most importantly, they were read and their works were used. The analysis of Šindel's treatise reveals the functioning of his *Eclipse Instrument*. The study is accompanied by a critical edition of *Canones pro eclipsibus Solis et Lune* and a set of figures which illustrate the shape of the instrument itself.

* * *

This volume would not have been possible without the work of many scholars. These include the authors, some of whom had to be very patient throughout the process, but also the many reviewers who have diligently read the individual chapters and commented on them, sometimes in great detail. I am grateful for their work, cooperation and the time they have spent with the papers. I am also grateful for the support of the *Studia Artistarum* series, in particular to Luca Bianchi and Dominique Poirel, and to Emmanuelle Kuhry, Secretary of the series, with whom I was in near constant touch during the review process. Olga Weijers, amongst other things formerly its president, deserves special thanks for her friendly support in the organization of the 2nd meeting of the *Societas Artistarum* in Prague on 8–9 December 2016, which was the basis for the preparation of the present volume. I also wish to thank Alastair Millar, a specialist translator and proofreader, who went through most of the papers to proofread the English. The

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MILAN ŽONCA

Menaḥem ben Jacob Shalem and the Study of Philosophy in Late Medieval Prague*

1. The Position of Aristotelian Philosophy in Ashkenazic Culture

As the contributions gathered in this volume show, the study of Aristotelian science and philosophy was an important and multi-faceted cultural practice in late medieval Bohemia, one that found its expression in diverse institutional frameworks, most prominently at the mendicant *studia* and the university founded in Prague in 1348. Surviving manuscript copies and the glosses they contain show that philosophical texts attracted readers from different intellectual and social milieus. Literary works written for a popular audience also attest to the dissemination of philosophical ideas in the vernacular. In short, studying the arts in late medieval Bohemia was an established pursuit that shaped the local intellectual and religious discourse, and tied it to contemporary debates taking place across the whole continent.

What was the place of the Jewish community of Prague within this intellectual landscape? Did the Jews living in late medieval Bohemia, and eastern Europe more generally, participate in the flourishing study of philosophical and scientific disciplines in ways that at least to some extent mirrored the practices of their Christian neighbors? More fundamentally, is it at all meaningful to speak of philosophical interests of late medieval Jews living north of the Alps?

Traditionally, the answer offered by intellectual historians of Judaism to the latter question has been negative. Unlike their Sephardic counterparts, who were nourished by the philosophical and scientific traditions of Islamic culture and who later passed their rationalistic lore to the Jewish rabbinic elites of Provence, Ashkenazic scholars of northern France and Germany throughout the Middle Ages

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showed very little interest in the study of philosophy and natural science. Medieval Jews living under Christian rule and interested in philosophical knowledge were mostly ignorant of both Arabic and Latin, and thus did not share a common technical language with their Christian counterparts, nor were Christian universities open to Jewish students. While scholars have recently re-evaluated the degree of interaction between medieval Latin and Hebrew learned cultures, the reception of Christian scholastic thought in the Jewish milieu seems to have been limited to a relatively small number of individuals who were active in specific socio-historical contexts[1].

Furthermore, medieval Ashkenazic Jews mostly lacked access to the corpus of philosophical writings and translations produced by Jewish scholars of the south, including perhaps the greatest work of medieval Jewish philosophy, Maimonides's *Guide of the Perplexed*[2]. In the rare instances of confrontation with the elements of "Greek wisdom" or rationalistic "Gentile dialectics" within their own culture, Ashkenazic scholars perceived philosophy as a threat to Jewish religiosity – a wasteful pursuit which not only unduly nourished competitiveness, excessive intellectualism and religious negligence, but also problematized the established interpretation of Jewish tradition and endangered the process of halakhic thinking[3]. Thus, during the controversies surrounding the study of the philosophical works of Maimonides in Provence in the 1230s, Jewish scholars from northern France weighed in with their critical opinion and showed little sympathy for the philosophically influenced allegorical interpretation of the Bible and Talmud championed by adherents of Maimonides, although it seems that their attitude to the interpretation of anthropomorphism in the Jewish canon was much less literal and more nuanced than their rationalistic opponents insinuated[4]. Some Jews, especially those influenced by the metaphysical speculations of Ashkenazic Pietists (*ḥasidei Ashkenaz*), appropriated philosophical motifs and terminology in their discussions of

1 See for instance the studies collected in *Latin-into-Hebrew: Texts and Studies*, A. Fidora, H. J. Hames, Y. Schwartz (eds.), 2 vols, Leiden / Boston, Brill, 2013.

2 Ashkenazic scholars remained ignorant of, or uninterested in, the philosophical contents of the *Guide*. The Tosafists who took part in the so-called Maimonidean controversy in the 1230s probably had some access to the text of the *Guide of the Perplexed* or its parts, see J. Shatzmiller, "Les tossafistes et la première controverse maïmonidienne: le témoignage du rabbin Asher ben Gershom", in G. Dahan, G. Nahon, E. Nicolas (eds.), *Rashi et la culture juive en France du Nord au Moyen Âge*, Paris, E. Peeters, 1997, p. 55–82 (in particular p. 56–57). However, Ashkenazic scholars rarely cited the *Guide*, with the notable exception of Isaiah di Trani, who was of Italian origin, but received his education in Ashkenaz. See E. Kanarfogel, *The Intellectual History and Rabbinic Culture of Medieval Ashkenaz*, Detroit, Wayne State University Press, 2012, p. 515–518.

3 For a pertinent example, see J. Galinsky, "An Ashkenazic Rabbi Encounters Sephardic Culture: R. Asher b. Jehiel's Attitude Towards Philosophy and Science", in *Jahrbuch des Simon-Dubnow-Instituts*, 8 (2009), p. 191–211. "Gentile dialectics" is rejected in *Sefer ḥasidim*, ed. Y. Wistinetzki, Berlin, Meḳiẓei Nirdamim, 1897, no. 752; see also I. M. Ta-Shma, "Miẓwat Talmud-Torah ki-ve'ayah datit we-ḥevratit be-Sefer ḥasidim", in *Bar Ilan*, 14–15 (1976), p. 98–113; reprinted in I. M. Ta-Shma, *Halakhah, minhag u-mezi'ut be-Ashkenaz, 1000–1350*, Jerusalem, Magnes Press, 1996, p. 112–129 (esp. p. 119).

4 E. Kanarfogel, "Varieties of Belief in Medieval Ashkenaz: The Case of Anthropomorphism", in D. Frank, M. Goldish (eds.), *Rabbinic Culture and Its Critics; Jewish Authority, Dissent, and Heresy in Medieval and Early Modern Times*, Detroit, Wayne State University Press, 2008, p. 117–159; E. Kanarfogel, "Anthropomorphism and Rationalist Modes of Thought in Medieval Ashkenaz: The Case of R. Yosef

Divine unity and the nature of prophetic vision[5]. They also turned to theological interpretations of the natural world[6]. For most Ashkenazic scholars, however, philosophy and natural science constituted a marginal intellectual interest. The rationalist impulse remained, as David Berger has put it, "alien to the deeply embedded instincts" of Ashkenazic culture[7].

However, the Ashkenazic reluctance to appropriate philosophical rationalism as the primary hermeneutical device applied to the Jewish tradition does not mean that Ashkenazic culture remained oblivious to the dissemination of philosophical texts, or that the study of Aristotelian philosophy played no role whatsoever in late medieval Ashkenazic religious practice. In 1972, Ephraim Kupfer suggested that the cultural profile of Ashkenazic Jewry described above was transformed in the late Middle Ages, and should be reinterpreted accordingly[8]. Discussing several instances of the study of philosophy among Ashkenazic rabbis of the late fourteenth and early fifteenth centuries, Kupfer posited "interest in philosophy among various groups of Ashkenazic Jews" in the late Middle Ages[9]. Kupfer's assertion has not remained uncontested. In the last twenty-five years, historians of medieval Jewish culture have offered more nuanced views of the place of philosophy in late medieval Ashkenaz, arguing that the study of Maimonides's philosophical texts and the appropriation of rationalistic attitudes was much less systematic and more geographically and socially circumscribed than suggested by Kupfer[10]. Nevertheless,

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Bekhor Shor", in *Jahrbuch des Simon-Dubnow-Instituts*, 8 (2009), p. 119–138; E. Kanarfogel, "Ha-omnam hayu ba'alei ha-tosafot magshimim?", in A. (Rami) Reiner et alii (eds.), *Ta-Shema': Meḥḳarim bemada'ei ha-yahadut le-zikhro shel Israel M. Ta-Shma*, Alon Shevut, Hoẓa'at Tevunot-Mikhlelet Herzog, 2011, p. 671–703; Kanarfogel, *The Intellectual History and Rabbinic Culture of Medieval Ashkenaz*, p. 489–529.

5 J. Dan, *Torat ha-sod shel ḥasidut Ashkenaz*, Jerusalem, Bialik Institute, 1968, p. 130–143; J. Dan, "Ashkenazi Hasidism and the Maimonidean Controversy", in *Maimonidean Studies*, 3 (1992), p. 29–47 (in particular p. 32–38); E. R. Wolfson, *Through a Speculum That Shines: Vision and Imagination in Medieval Jewish Mysticism*, Princeton, NJ: Princeton University Press, 1997, p. 195–197.

6 D. I. Shyovitz, *A Remembrance of His Wonders: Nature and the Supernatural in Medieval Ashkenaz*, Philadelphia, University of Pennsylvania Press, 2017.

7 D. Berger, "Polemic, Exegesis, Philosophy, and Science: On the Tenacity of Ashkenazic Modes of Thought", in *Jahrbuch des Simon-Dubnow-Instituts*, 8 (2009), p. 27–39 (in particular p. 39).

8 E. Kupfer, "Li-demutah ha-tarbutit shel yahadut Ashkenaz we-ḥakhmeiha ba-me'ot ha-14–15", in *Tarbiẓ*, 42 (1973), p. 113–147.

9 Kupfer, "Li-demutah ha-tarbutit shel yahadut Ashkenaz we-ḥakhmeiha ba-me'ot ha-14–15", p. 113.

10 For a summary of Kupfer's thesis and the debate surrounding it, see D. B. Ruderman, *Jewish Thought and Scientific Discovery in Early Modern Europe*, New Haven, Yale University Press, 1995, p. 55–60; J. M. Davis, "Philosophy, Dogma, and Exegesis in Medieval Ashkenazic Judaism: The Evidence of 'Sefer Hadrat Qodesh'", in *AJS Review*, 18-2 (1993), p. 195–222 (esp. p. 198–202). Israel Yuval has argued *contra* Kupfer that the influence of philosophy on late medieval rabbinic authorities was minimal, see I. J. Yuval, *Ḥakhamim be-doram: ha-manhigut ha-ruḥanit shel yehudei Germanyah be-shilhei yemei ha-beinayim*, Jerusalem, Hebrew University, 1988, p. 301. Joseph Davis and Joseph Dan have suggested that the new interest in philosophy was driven by traditional Ashkenazic exegetical concerns, approached with new emphases. See J. M. Davis, "R. Yom Tov Lipman Heller, Joseph b. Isaac Ha-Levi, and Rationalism in Ashkenazic Culture, 1550–1650", Cambridge, MA, Diss. Harvard University, 1990, p. 76–81, 91–94; J. Dan, "Ḥibur yiḥud ashkenazi min ha-me'ah ha-14", in *Tarbiẓ*, 44 (1974), p. 204–206 (in particular p. 204–206). Interaction with non-Jewish culture has also been suggested as a possible influence by Joseph Davis, as well as by Tamás Visi. See Davis, "R. Yom

most agree that the material presented by Kupfer does suggest that by the end of the fourteenth century, philosophical motifs and ideas were starting to penetrate Ashkenazic religious discourse.

The focal point of this new development seems to have been located in Prague. Here, a small group of Jewish readers and scholars interested in Aristotelian philosophy, as mediated primarily through Maimonides, emerged at the turn of the fifteenth century and spread further to the east in subsequent generations. These Jewish readers were engaged in a focused study of philosophical texts of Jewish as well as non-Jewish origin, including the works of Aristotle and his later commentators. They studied these texts in Hebrew translations produced decades earlier, for the most part in Provence. They discussed matters of philosophical exegesis with each other and attempted to define the relationship between philosophical and scientific knowledge on the one hand, and the knowledge received through religious tradition, including the mystical and esoteric tradition known as the Kabbalah, on the other. Last but not least, as we shall see, they were also eager to disseminate philosophical knowledge among their contemporaries. At least one member of this group – a Jewish scholar named Menaḥem ben Jacob Shalem, whose writings I shall examine in more detail – even ventured to produce texts dedicated to the detailed exposition of philosophical motifs and to the exploration of the relationship between Aristotelian philosophy and traditional Jewish religious practice.

Parts of the philosophical output of the members of this group have already been studied by Kupfer, and more recently by Tamás Visi[11]. However, a thorough treatment of the contours of their philosophical outlook still remains a *desideratum*. The following examination has a more limited aim, and is primarily concerned with patterns of text transmission and the modes of their study, hopefully contributing – albeit modestly – to the historical contextualization of this phenomenon.

What did it mean for late medieval Jews in Prague to devote their attention to the writings of Aristotle and his Jewish followers? As I have argued elsewhere, late medieval Ashkenazic Jews turned to the study of philosophical texts in order to rectify the perceived shortcomings of the religious life of their communities[12]. They appropriated philosophical concepts primarily in order to shed light on traditional

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Tov Lipman Heller, Joseph b. Isaac Ha-Levi, and Rationalism in Ashkenazic Culture, 1550–1650", p. 83–86; T. Visi, "The Emergence of Philosophy in Ashkenazic Contexts: The Case of Czech Lands in the Early Fifteenth Century", in *Jahrbuch des Simon-Dubnow-Instituts*, 8 (2009), p. 213–243 (in particular p. 214–221, 227–234); T. Visi, *On the Peripheries of Ashkenaz: Medieval Jewish Philosophers in Normandy and in the Czech Lands from the Twelfth to the Fifteenth Century*, unpublished habilitation thesis, Palacký University, 2011, accessible from: https://www.academia.edu/2045530; T. Visi, "Plague, Persecution, and Philosophy: Avigdor Ḳara and the Consequences of the Black Death", in E. Shoham-Steiner (ed.), *Intricate Interfaith Networks in the Middle Ages: Quotidian Jewish-Christian Contacts*, Turnhout, Brepols, 2016, p. 85–117.

11 See the notes above.

12 See M. Žonca, "The 'Imagined Communities' of Yom Tov Lipman Mühlhausen: Heresy and Communal Boundaries in *Sefer Niẓẓaḥon*", in C. Cluse, L. Clemens (eds.), *The Jews of Europe Around 1400: Disruption, Crisis, and Resilience*, Wiesbaden, Harrassowitz, 2018, p. 119–143 (in particular p. 124–133).

questions surrounding focal topics of religious metaphysical speculation, such as the correct understanding of Divine unity and incorporeality, the nature of prophetic vision and the immortality of soul. The Ashkenazic patterns of philosophical study were influenced by the practice of the esoteric transmission of mystical texts, as well as by the accumulative, gloss-oriented modes of halakhic study. Analogously to their traditional approach to authoritative texts of Jewish religious law, Ashkenazic scholars interested in philosophical study focused on a small number of canonical texts produced by accepted authorities such as Maimonides and his later interpreters, and disseminated these texts along with comments explaining and elaborating on their contents.

As we shall see, they followed "radical Maimonidean commentators" such as Moses Narboni, a fourteenth-century Provençal Averroist active in northern Spain, in perceiving the *Guide of the Perplexed* as a repository of esoteric wisdom which, like the Bible and the rabbinic literature as a whole, is "encoded" in an Aristotelian key[13]. While Maimonides himself tried to conceal the esoteric stratum of his work from the uneducated masses by employing deliberate contradictions, the dissemination of Aristotelian learning in later generations led Narboni and the commentators who followed his suit to believe that such caution was no longer necessary[14]. The Ashkenazic students of philosophy in Prague, therefore, belonged to a group of Jewish scholars for whom the study of Aristotelian science was more than a speculative pursuit; it was rather an integral part of their Jewish religious practice, an essential element of their interaction with sacred texts and authoritative tradition. Furthermore, they believed that the study of philosophical truth was not only an intellectual, but also a spiritual quest, aiming to secure Divine protection in this world and survival of the soul after death. They acknowledged that this quest was available only to the select few, but at the same time felt no need to conceal their conviction that the knowledge acquired through the study of philosophy is superior to knowledge received from other sources, including religious traditions[15].

2. Maimonides and the Study of the *Guide of the Perplexed* in Bohemia

The first dated Ashkenazic copy of the *Guide of the Perplexed* is an illuminated manuscript produced in 1349 by a certain Jacob ben Samuel *Naḥlif*. The manuscript, known as the "Norsa Codex", contains elaborate calligraphy and seems to have been illuminated in several stages in the German-speaking areas of Central Europe[16]. In

13 On Narboni's commentary on the *Guide of the Perplexed*, see G. Holzman, "Be'uro shel R. Moshe Narboni le-More nevukhim la-Rambam", in *Da'at*, 74–75 (2013), p. 197–236.

14 A. Ravitzky, "The Secrets of the Guide to the Perplexed: Between the Thirteenth and Twentieth Centuries", in I. Twersky (ed.), *Studies in Maimonides*, Cambridge, MA, Harvard University Press, 1990, p. 159–207 (in particular p. 165–167).

15 Žonca, "The 'Imagined Communities' of Yom Tov Lipman Mühlhausen", p. 128–133.

16 On the "Norsa Codex", see T. Metzger, "Le manuscrit Norsa. Une copie ashkenaze achevée en 1349 et enluminée du *Guide des égarés* de Maïmonide", *Mitteilungen des Kunsthistorischen Institutes in Florenz*,

the colophon, the scribe mentions that he finished the manuscript in the year when "light turned into darkness", probably referring to the attacks that devastated Jewish communities in Central Europe during the Black Death.

A breakthrough in systematic philosophical study seems to have occurred in the second half of the fourteenth century. In the the late 1360s or early 1370s, an otherwise unknown author named Solomon ben Judah ha-Naśi composed a commentary on the *Guide* "after having spent two years in the land of Ashkenaz with the esteemed master Rabbi Jacob, son of Rabbi Samuel"[17]. The name suggests that the addressee of the commentary may be identical with the scribe who copied the Norsa Codex. The commentary was meant to serve as a study tool, a handbook for a student interested in systematic philosophical study. According to the proclamation of the author himself, he wrote it "as a reminder of the secrets contained [in the *Guide of the Perplexed*], of its glosses, the connections between its chapters, and the secrets of its terminology[…]"[18].

As Michael Nehorai noted, Solomon ben Judah's commentary is characterized by his tendency to identify philosophy with prophecy. For Solomon, philosophical study was therefore a necessary part of the process of ascent towards the divine:

> [J]ust as anyone who climbs a ladder will need to ascend step after step if he wants to get to the top of the ladder, so anyone who wants to reach God will have to attain Him through an investigation of his actions which point to his true reality, step after step, until he will apprehend Him who is above him[19].

According to Solomon, the survival of soul is completely dependent on acquiring the intelligibilia; however, the knowledge of truth must be received intentionally, not only contingently from tradition or without analysis of empirical facts[20].

Solomon's commentary was probably not widely disseminated, and in fact, only two manuscript copies survive[21]. Nevertheless, it seems to have stimulated philosophical interests among other Jewish readers in the area. In 1396, a manuscript of

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46-1 (2002), p. 1–73; C. Farnetti (ed.), *Il codice Maimonide e i Norsa. Una famiglia ebraica nella Mantova dei Gonzaga. Banche, libri, quadri. Catalogo della mostra*, Roma, 2018. Menahem Schmelzer's suggestion that the manuscript originated in Krems, Austria, is unsubstantiated. See M. Moscone, "The 'Norsa Codex' of Maimonides's Guide for the Perplexed", in C. Farnetti (ed.), *Il codice Maimonide e i Norsa*, p. 36–49 (p. 48, n. 27).

17 MS Cambridge, University Library, MS Add. 393 [IMHM F 16311], fol. 3r. The translations from primary sources in Hebrew are mine unless noted otherwise. Verses from the Hebrew Bible are cited according to the JPS Tanakh translation. On Solomon ben Judah, see M. Zvi Nehorai, *R. Shlomo bar Yuda ha-Naśi u-ferusho le-Moreh ha-nevukhim*, Jerusalem, Diss. Hebrew University, 1978.

18 MS Cambridge, University Library, MS Add. 393 [IMHM F 16311], fol. 3r.

19 Nehorai, *R. Shlomo bar Yuda ha-Naśi u-ferusho le-Moreh ha-nevukhim*, p. 30; translation on p. 2 of the English summary.

20 Nehorai, *R. Shlomo bar Yuda ha-Naśi u-ferusho le-Moreh ha-nevukhim*, p. 26–33.

21 MS Jerusalem, National Library of Israel, MS 38°7407 (formerly London, Rabbinic Seminary, MS 52) [IMHM F 4722] and the Cambridge manuscript cited above (see n. 17).

the *Guide of the Perplexed* was copied in Prague for a certain Simeon[22]. This could have been Simeon ben Samuel of Regensburg, a writer who quoted from *The Guide* in his *Hadrat ḳodesh* (*The Splendor of Holiness*), a mystical commentary on Maimonides's thirteen principles of faith written in 1400[23]. Simeon also corresponded with Avigdor Ḳara, a scholar active in Prague and a member of the local rabbinic court, who was also interested in harmonizing the philosophical doctrine of God's unity as defined by Maimonides with Kabbalistic ideas[24]. Yom Tov Lipman Mühlhausen, an important Ashkenazic rabbinic authority of the late fourteenth and early fifteenth centuries, and the author of the popular polemical text *Sefer niẓaḥon* (*The Book of the Polemic*), mentioned Solomon ben Judah in his philosophical work *Sefer ha-eshkol* (*The Book of the Cluster*), written in 1413, and also used his commentary[25]. Lipman sat on the *bet din*, the rabbinic court of Prague, together with Avigdor Ḳara and his colleague and friend Menaḥem ben Jacob Shalem. The latter was also an avid student of Maimonides and Aristotelian philosophy, and produced numerous glosses on Maimonides's *Guide of the Perplexed*, on Moses Narboni's commentary on this work, and separate treatises exploring philosophical themes in the *Guide*. It is to Menaḥem's work, its transmission and dissemination, that I now turn in more detail.

3. Menaḥem ben Jacob's Background and Education

As is often the case with medieval Jewish students of philosophy, very little is known of Menaḥem ben Jacob[26]. In the following section, I summarize the information available on his background, and evaluate different theories proposed regarding the

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22 MS Hamburg, Staats- und Universitätsbibliothek, MS Levy 116 [IMHM F 1562]. The colophon is found on fol. 144r. See also Kupfer, "Li-demutah ha-tarbutit shel yahadut Ashkenaz we-ḥakhmeiha ba-me'ot ha-14–15", p. 147. According to a note appended in a later hand, the manuscript was found in a stone wall in the town of Nagyszombat, today Trnava in Slovakia.

23 On *Hadrat ḳodesh* and its use of Maimonidean philosophy, see Davis, "Philosophy, Dogma, and Exegesis in Medieval Ashkenazic Judaism".

24 In one surviving letter to Simeon, Avigdor Ḳara summarized to Simeon the contents of his (lost) treatise titled *Even sapir* (*The Sapphire Stone*) dedicated to harmonizing the Kabbalistic doctrine of ten *sefirot* (divine aspects or emanations) with the philosophically defined doctrine of God's unity. Ḳara claimed that the *sefirot* reflect the Aristotelian ten categories. See Y. Hershkowitz, "Kitvei R. Avigdor Ḳara", in *Yeshurun*, 30 (2014), p. 53–87 (in particular p. 73–75).

25 Y. Kaufmann, *Rabi Yom Ṭov Lipman Mihlhoyzn: ba'al ha-niẓaḥon, ha-ḥoḳer we-ha-meḳubal*, New York, Jewish Theological Seminary, 1927, p. 127, l. 11; p. 145, l. 29. According to Nehorai, the philosophical ideas in *Sefer ha-eshkol* are taken almost exclusively from Solomon ben Judah's commentary. See Nehorai, *R. Shlomo bar Yuda ha-Naśi u-ferusho le-Moreh ha-nevukhim*, p. 5. Furthermore, one of the surviving manuscripts of Solomon's commentary contains a gloss that refers to Lipman's *Sefer niẓaḥon* and may have been written by Lipman himself. See MS Cambridge, University Library, Add. 393, fol. 41v. On Lipman's attitude to philosophy, see also V. Sadek, "Yom Tov Lipman Mülhausen and His Rationalistic Way of Thinking", in *Judaica Bohemiae*, 24-2 (1988), p. 98–113; O. Elior, "Rabi Yom Ṭov Lipman Milhoyzn ḥoḳer et ḳolot ha-galgalim", in *Mada'ei ha-yahadut*, 49 (2013), p. 131–155.

26 On the difficulties of research tracing the lives and careers of medieval Jewish science, see for instance Y. Schwartz, "Imagined Classrooms? Revisiting Hillel of Verona's Autobiographical Records", in A. Speer, T. Jeschke (eds.), *Schüler und Meister*, Berlin, de Gruyter, 2016, p. 483–502 (p. 484–485).

roots of his philosophical interests. I believe there is enough evidence to suggest that Menaḥem ben Jacob Shalem was very likely born and spent the larger part of his productive life in Ashkenazic lands, and more specifically in Prague.

Menaḥem ben Jacob's identity is difficult to pin down in part because of the fact that he appears in the manuscripts with different bynames. When signing his glosses or longer texts, Menaḥem referred to himself as either "Menaḥem" (or "the humble Menaḥem"), or "Menaḥem ben Jacob Shalem". Ephraim Kupfer has argued convincingly that "the divine philosopher" Menaḥem Agler (or Aglar) who wrote a reply to a query written by the Austrian rabbi Abraham Ḳlausner (d. 1407/8) concerning philosophical interpretations of Divine unity and prophetic vision, was in fact Menaḥem ben Jacob Shalem[27]. Could the bynames "Shalem" and "Agler/Aglar" reveal some information about the author's background?

Kupfer has suggested that the byname Agler refers to the city of Aquileia in northern Italy, and that Menaḥem adopted it during his stay there[28]. In contrast, Robert Bonfil interpreted the sobriquet as a reference to the author's origin rather than place of residence, associating it with the city of Aguilar de Campoo in northern Spain. According to Bonfil's interpretation, Menaḥem ben Jacob may have been among the Jews who left the community after its destruction in 1366 and settled in Germany or Bohemia[29]. While Kupfer's interpretation corresponds with the migration patterns of Ashkenazic Jews to northern Italy in the late Middle Ages, and also seems to be corroborated by the fact that some of Menaḥem's texts have been transmitted in manuscripts of northern Italian origin, his heavy reliance on texts written and commented by Moses Narboni (d. after 1362), who was active in northern Spain in the mid-fourteenth century, makes Bonfil's hypothesis plausible as well[30]. Adding a further layer of complexity to the question, the byname "Shalem" has led Moshe Idel to suggest that Menaḥem was either from Jerusalem or spent some time there[31]. While the presence of a group of Ashkenazic scholars residing in Jerusalem has been attested for the 1380s, the evidence adduced by Idel in support for Menaḥem's personal connection to the Land of Israel is not entirely convincing[32].

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27 Kupfer, "Li-demutah ha-tarbutit shel yahadut Ashkenaz we-ḥakhmeiha ba-me'ot ha-14–15", p. 124.

28 Kupfer, "Li-demutah ha-tarbutit shel yahadut Ashkenaz we-ḥakhmeiha ba-me'ot ha-14–15", p. 124.

29 R. Bonfil, "Sefer ʿalilot devarim – Pereḳ be-toldot he-hagut ha-yehudit ba-me'ah ha-arbaʿ ʿeśreh", in *Eshel Be'er Sheva'*, 2 (1980), p. 229–264 (esp. p. 237, n. 38).

30 Narboni's commentary was completed in Soria in 1362. See Holzman, "Be'uro shel R. Moshe Narboni le-More nevukhim la-Rambam", p. 200.

31 To the best of my knowledge, Moshe Idel never published his theory, but he seems to have mentioned it in personal communication with a number of scholars. See E. Reiner, *'Aliyah we-'aliyah la-regel le-Ereẓ Yiśra'el'*, Jerusalem, Diss. Hebrew University, 1988, p. 143, n. 93; Davis, "Philosophy, Dogma, and Exegesis in Medieval Ashkenazic Judaism", p. 201, n. 23; D. Berger, "Judaism and General Culture in Medieval and Early Modern Times", in J. J. Schacter (ed.), *Judaism's Encounter with Other Cultures: Rejection or Integration?*, Northvale, NJ / Jerusalem, Jason Aronson, 1997, p. 57–141 (esp. p. 122, n. 113).

32 Commenting on the *Guide of the Perplexed* (henceforth *GP*), II. 40, where Maimonides discussed the criteria which must be met by any true prophet, Menaḥem mentioned "the religion of those, who were led to apostasy by Jesus. It was established in the church in the town of Latrun and it is called 'the new religion'" (דת תשמידי ישו שנעשה בכנסייה בעיר לאטרון והיא אשר יקראוה דת חדשה, MS Oxford, Bodleian Library, Opp. 573 [IMHM F 22078], fol. 152r; cf. MS St Petersburg, Russian Academy of

Another piece of evidence is presented by a manuscript that is probably Menaḥem ben Jacob's autograph. It is a copy of the legal compendium *ʿAmudei ha-golah* (better known as *Sefer miẓwot ḳaṭan*) by Isaac of Corbeil (d. 1280), supplemented by later glosses by Pereẓ of Corbeil and Moses of Zurich. The manuscript, which is now held at the Biblioteca Palatina in Parma, was finished on 25th Tevet 5141 (22nd December 1380) and its scribe identified himself as Menaḥem ben Jacob[33]. He used an Ashkenazic semi-cursive script characteristic of the period and, more importantly, he marked the Hebrew word *shalom* in numerous places throughout the manuscript, a practice commonly used by scribes to identify themselves[34].

ʿAmudei ha-golah was an extremely popular introduction to halakhic rules, originally intended for use among wider strata of Jewish society, including women. Given the fact that the scribe copied this manuscript for his own use, it is reasonable to assume that he was a young man, not an advanced scholar[35]. In light of this evidence, it seems probable that Menaḥem was born in the late 1350s or early 1360s. The suggestion that he spent his youth in Bohemia is further corroborated by the fact that Avigdor Ḳara, Menaḥem's later colleague at the *bet din* of Prague, who was also born in the late 1350s or early 1360s, seems to indicate they studied together in Prague[36]. Finally, in his correspondence with Abraham Ḳlausner, Menaḥem (Agler) mentioned the thirteenth-century Ashkenazic Tosafist Moses Taḳu and his anti-philosophical polemical treatise *Ketav tamim* (*The Upright Writing*) – which he heard being described as *Ketav ṭame'* (*The Unclean Writing*) in his youth. This could also suggest that he spent his early life in an area where this rather obscure anti-philosophical text of Ashkenazic origin was accessible.

More importantly, when signing his glosses, Menaḥem always used the name Shalem in conjunction with the name of his father. The sobriquet therefore did not belong to himself, but to his father Jacob. As such, it could have been a reference taken from Maimonides's *Guide of the Perplexed*, alluding to its bearer as an "individual endowed with perfect apprehension" ("ha-ish ha-shalem be-haśagato" in Samuel ibn Tibbon's translation of the *Guide*), whose intellect is constantly occupied with God[37]. If this is indeed the case, then it is reasonable to assume that Jacob Shalem was also an active student of philosophical texts, and that he strove to

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Sciences, C 47 [IMHM 69303], fol. 154v). While the reference to Latrun, a medieval crusader castle near the ancient Emmaus Nicopolis, one of the places traditionally identified as the site of Jesus's revelation to his disciples after the resurrection, might betray Menaḥem's knowledge of the geography of the Land of Israel, the gloss could also be read as a reference to Lateran and the important church councils held there in the Middle Ages. I would like to thank Tamás Visi for this suggestion. Furthermore, except for two brief glosses containing Arabic equivalents of individual Hebrew terms, there is no evidence that Menaḥem knew Arabic. See MS Oxford, Bodleian Library, Opp. 585, fols 17r, 51v. On Ashkenazic Jewish scholars present in Jerusalem in the second half of the fourteenth century, see E. Reiner, "Bein Ashkenaz li-Yrushalayim", in *Shalem*, 4 (1984), p. 27–62 (in particular p. 48–62).

33 MS Parma, Biblioteca Palatina, Cod. Parm. 3158 [IMHM F 13898], fol. 233r.

34 MS Parma, Biblioteca Palatina, Cod. Parm. 3158 [IMHM F 13898], fols 10r, 11r, 15v, 20v, 22v, 23r, 47v etc.

35 Furthermore, he referred to his father using an honorific title indicating that he was still alive.

36 Visi, "Plague, Persecution, and Philosophy", p. 111.

37 Moses Maimonides, *GP*, III. 51. English translations from *GP* are cited from Moses Maimonides, *The Guide of the Perplexed*, transl. by S. Pines, Chicago, University of Chicago Press, 1963 (here at p. 624).

achieve the ideal presented by Maimonides as the pinnacle of intellectual worship. Given the fact that his son Menaḥem seems to have been acquainted with Solomon ben Judah ha-Naśi's commentary on the *Guide of the Perplexed*, we could even speculate that Jacob Shalem might have been the "master Jacob ben Samuel" who studied the *Guide* with Solomon in the late 1360s, as mentioned above.

To come back full circle, it is even possible that Jacob Shalem did indeed have the very ties to the Land of Israel which have previously been ascribed to his son Menaḥem. This is suggested by the contents of two manuscripts which were copied in Jerusalem by the same scribe during the 1380s for a certain Jacob ben Samuel[38]. One of them, now held in the Vatican Library, is a collection of *miscellanea* also containing philosophical texts, such as the handbook on logic and its application in biblical exegesis *Ẓeror ha-kesef* (*Bundle of Silver*) by Joseph ibn Kaspi (d. after 1332), and Averroes's *Middle Commentary* on Aristotle's *Metaphysics* in the Hebrew translation of Ḳalonymos ben Ḳalonymos (d. after 1328)[39]. While the larger part of this manuscript was copied in Sephardic handwriting by a scribe named Moses, one section, which could have been copied by the owner himself, is written in an Ashkenazic hand, and contains the treatise on scribal practice *Barukh she-amar* (*Blessed is He who spoke*) written by Samson ben Eliezer, a scholar with ties to Prague[40].

While the evidence is by no means conclusive, it is tempting to see Jacob ben Samuel, the Ashkenazic scribe who copied the *Guide of the Perplexed* in 1349 and studied the text with Solomon ben Judah in "the land of Ashkenaz" in the late 1360s, Jacob ben Samuel, the Jew residing in Jerusalem in the 1380s and interested in philosophical texts, and Jacob, the father of Menaḥem ben Jacob "Shalem" as in fact one and the same person. One could then speculate that Menaḥem obtained his Jewish education, including education in philosophical texts in Hebrew, primarily from his father Jacob "Shalem".

4. The Purpose of Philosophical Study according to Menaḥem ben Jacob

As already mentioned, the corpus of philosophical texts written by Menaḥem ben Jacob Shalem is fragmentary and survives in several manuscripts. Furthermore, some of his texts seem to have been lost[41]. In the following section, it is therefore

38 MS Cambridge, University Library, Add. 3112 [IMHM F 17554], copied in 1388; MS Vatican, BAV, ebr. 283 [IMHM F 340].

39 For a description of this manuscript, see B. Richler, *Hebrew Manuscripts in the Vatican Library: Catalogue*, Città del Vaticano, Biblioteca Apostolica Vaticana, 2008, p. 208–210.

40 Samson ben Eliezer was an orphan raised in Prague, as he recounts in the introduction to his work. See *Ḳoveẓ sifrei StaM*, ed. M. M. Meshi-Zahav, Jerusalem, Mekhon ha-talmud ha-yisŕe'eli ha-shalem, 1981, p. 15. In the 1380s, Samson ben Eliezer was also a teacher of Yom Tov Lipman Mühlhausen, see *Ḳoveẓ sifrei STaM*, p. 198.

41 In his letter to Abraham Ḳlausner, discussed in more detail below, Menaḥem mentioned a treatise which he had dedicated to the nature of God's presence in the world and which he called *Tokhnit 'olam* (Kupfer, "Li-demutah ha-tarbutit shel yahadut Ashkenaz we-ḥakhmeiha ba-me'ot ha-14–15", p. 141).

not my ambition to present an exhaustive summary of Menaḥem's thought; rather I shall point to some important motifs that reappear in Menaḥem's writings and trace the transmission of his texts. In conjunction, these investigations should help us find the answer to the question of why Ashkenazic scholars like Menaḥem studied philosophical texts at all.

In the article mentioned above, Ephraim Kupfer focused his attention on the surviving correspondence between Menaḥem Agler/Aglar and Abraham Ḳlausner, a leading Austrian rabbi of the late fourteenth century. Since they had not been able to meet for a long time, Ḳlausner asked Menaḥem for written instruction on the "deep secrets [...] concerning the main principles of [God's] unity that a man must know"[42]. Ḳlausner's specific query focused on the anthropomorphic language of the Bible and on the nature of prophetic vision. His letter was motivated, he wrote, primarily by his encounter with contradictory statements concerning the nature of the form of God revealed to the prophets in various texts he had studied. In his inquiry, Ḳlausner quoted on the one hand the opinions of Seʿadyah Gaʾon, Maimonides, the anonymous author of the liturgical poem *Shir ha-yiḥud* (*The Hymn of Unity*), and Abraham ibn ʿEzra, who advocated the created and incorporeal nature of these visions, and on the other the more literal and anthropomorphic interpretations of Elḥanan ben Yaḳar of London and Moses Taḳu, two Ashkenazic scholars who flourished in the first half of the thirteenth century[43]. Ḳlausner seems to have been particularly troubled by Seʿadyah's unsparing condemnation of all adherents of the doctrine that God communicates with people directly, and not through an intermediary entity called the "Created Glory", as heretics[44].

In his response, Menaḥem explained to Ḳlausner some of the most crucial tenets of Maimonidean philosophy, such as the non-corporeality and non-affectivity of God, sharply denying the literal interpretation of biblical anthropomorphism. Many of his arguments were borrowed from Maimonides's introduction to Part Two of the *Guide of the Perplexed*, where Maimonides presented a summary of twenty-six premises of Aristotelian science required to demonstrate the existence and oneness of God. Menaḥem also offered philosophical proofs of the immortality of the soul, emphasizing that according to the philosophers no faculties of the soul remain after death, except the intelligibilia acquired during life[45].

In one of his glosses on the *Guide*, he also referred to a separate text he had written on the subject of Divine providence (MS St Petersburg, Russian Academy of Sciences, C 47, fol. 187r): וכבר יש לנו מאמר קטן בהשגחה התבאר בו עניין זה יותר רחב.

42 Kupfer, "Li-demutah ha-tarbutit shel yahadut Ashkenaz we-ḥakhmeiha ba-me'ot ha-14–15", p. 134: הנה מרחוק כתבתי לך לגלות לי מדברים נסתרים ועמוקים, והנה ארכו הימים שלא באנו יחד, לכן כתוב לי שנים ושלשה דברים מעיקרי הייחוד שאדם חייב לדעת.

43 On Elḥanan ben Yaḳar, see G. Vajda, "De quelques infiltrations chrétiennes dans l'oeuvre d'un auteur anglo-juif du XIII[e] siècle", in *Archives d'histoire doctrinale et littéraire du Moyen Âge*, 36 (1961), p. 15–34; J. Dan, "Ḥug 'ha-keruv ha-meyuḥad' bi-tenuʿat ḥasidut Ashkenaz", in *Tarbiz*, 35-4 (1966), 349–372 (in particular p. 361–364); J. Dan, *Toldot torat ha-sod ha-ʿivrit*, Jerusalem, Merkaz Zalman Shazar, 2012, vi, p. 750–791.

44 Kupfer, "Li-demutah ha-tarbutit shel yahadut Ashkenaz we-ḥakhmeiha ba-me'ot ha-14–15", p. 135.

45 Kupfer, "Li-demutah ha-tarbutit shel yahadut Ashkenaz we-ḥakhmeiha ba-me'ot ha-14–15", p. 143–145.

Throughout the text, Menaḥem quoted primarily from the works of Maimonides, but also from Samuel ibn Tibbon's *Commentary on Ecclesiastes*. Occasionally he mentioned non-Jewish philosophers in general; however, the only non-Jewish work referred to by name is Aristotle's *Posterior Analytics* (*Sefer ha-mofet*). It was in this text, Menaḥem noted, that Aristotle defined the concept of "demonstrative knowledge", i.e. knowledge based on deduction from premises, which is the highest form of knowledge[46]. However, it seems that Menaḥem felt that Aristotle's authority would not be sufficiently convincing, and he therefore added that in the Talmud, too, specific reasons are adduced for every legal ruling. According to Menaḥem, the demonstrative knowledge of the metaphysical principles outlined by Maimonides is the safest way to achieve the survival of the soul after death. He proclaims his readiness to give further instruction to Ḳlausner should he desire to ascend to this level and acquire demonstrative knowledge of God's unity. But he also – somewhat grudgingly – acknowledges the other option: "[I]f you are satisfied only with tradition and the strong faithfulness in your heart […], there is no need for you to trouble your intellect [with philosophy] and [you may] stay where you are[47]." For Menaḥem, those who rely exclusively on knowledge received by tradition may still hope to achieve personal salvation, however, the formulations throughout his letter make it clear that he found the "philosophical path" safer, and therefore preferable.

Clearly, Ḳlausner approached Menaḥem as an expert in esoteric knowledge, asking for instruction regarding the "secrets" of the correct – philosophical – understanding of God. In his reply, Menaḥem summarized some basic elements of the Maimonidean lore and offered further, more advanced guidance, if necessary. A glimpse of what this advanced instruction in "philosophical ascent" might entail is offered by a fragment of a treatise written by Menaḥem which has survived in a manuscript now located in Oxford[48]. This treatise originally consisted of at least three parts. The first two chapters of Part One are missing, but the content of chapters I. 3–5 suggests that the discussion followed the structure of one of the last chapters of the *Guide of the Perplexed*, III. 51. As Maimonides himself admitted, this chapter

> is only a kind of conclusion, at the same time explaining the worship as practiced by one who has apprehended the true realities peculiar only to Him after he has obtained an apprehension of what He is; and it also guides him toward achieving this worship, which is the end of man, and makes known to him how providence watches over him in this habitation, until he is brought over to the bundle of life[49].

In this chapter, Maimonides presents his well-known parable of the palace, illustrating the different – mostly insufficient – ways in which human beings attempt to approach God and acquire knowledge about Him. While acknowledging the

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46 Kupfer, "Li-demutah ha-tarbutit shel yahadut Ashkenaz we-ḥakhmeiha ba-me'ot ha-14–15", p. 145.

47 Kupfer, "Li-demutah ha-tarbutit shel yahadut Ashkenaz we-ḥakhmeiha ba-me'ot ha-14–15", p. 146: אבל אם יספיק לך הקבלה בלבד והאמונה החזקה התקועה בלבך […] אז אין צורך לך להטריד שכלך ותעמד במקומך.

48 MS Oxford, Bodleian Library, Opp. 585 [IMHM F 17390], fols 20r–58r.

49 *GP*, III. 51 (transl. Pines, p. 618).

essential role of an intellectual understanding of God, Maimonides claims that the aim of human life is to achieve the "worship of the heart", passionate love exercised through exclusive concentration on God, perfectly apprehended[50].

Menaḥem's treatise seems to be have been conceived as a guidebook offering a student of philosophy instruction in how to integrate the acquired knowledge into one's religious practice, transcend the intellectual dimension of the philosophical pursuit and achieve the benefits offered by God to those who acquire correct knowledge about Him. Following the structure of the aforementioned chapter from the *Guide*, the last three chapters of the first part of Menaḥem's treatise address guidance towards the correct, philosophically informed worship of God (ch. I. 3), the causes of Divine providence (ch. I. 4) and the immortality of the soul (ch. I. 5). The text is a pastiche of quotations taken primarily from the *Guide* and from the commentary of Moses Narboni, occasionally elucidating their position on the matters under discussion.

Menaḥem devoted particular attention to the relationship between philosophical knowledge and traditional religious practice. He emphasized that while Maimonides considered the practice of religious rituals like fasting or prayer to be subordinate to an intellectual knowledge of God, he nevertheless did not deny their usefulness in leading the mind towards contemplation of God and an understanding of His essence. Even animal sacrifice offered in the Jerusalem Temple was efficient only because it induced separation that would enable the sacrifice's mind to focus exclusively on God[51]. The same effect can be achieved more reliably by the study of philosophy. Menaḥem accepted Narboni's idea that if a philosopher is unified with the Active Intellect and receives the divine overflow, his body will become incorruptible like the celestial bodies[52]. He claimed that the miracles of Daniel in the lion's den (Dn 6) and the three youths in the fiery furnace (Dn 3) prove that those who receive prophetic inspiration are protected in a special way against bodily harm[53].

Occasionally, Menaḥem introduced other sources as well – in the discussion of the immortality of the soul in chapter I. 5, he included a summary of chapter I. 11 of the *Wars*

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50 *GP*, III. 51 (transl. Pines, p. 621): "[A]fter apprehension, total devotion to Him [i.e., God] and the employment of intellectual thought in constantly loving him should be aimed at."

51 MS Oxford, Bodleian Library, Opp. 585, fol. 44v: איפשר שהעבוד׳ שהיא בבית הבחירה היא נרצת אל השמים בכללו כשהיה ההתבודדות במעשה הקרבן תעלה המחשבה בו ית׳ כי נשא לבבינו אל כפים אל אל בשמים / ואז יעשה לנו מה שנרצה וישפיע הרוחניות על הראוי לקבלו. "[I]t is possible that the cult in the Jerusalem Temple was favorable to the Heavens in general [i.e., to God – as opposed to merely influencing celestial bodies, which is what ancient pagans believed – M.Ž.], because as a result of its separation [from the objects of sensation] (*hitbodedut*) during the act of sacrifice, the thought [of the sacrificer] would rise to the Holy One, blessed be He, for [it is written:] 'Let us lift up our hearts with our hands to God in heaven [Lam 3:41]'. Then He will do for us what we want, and the celestial influence will descend upon anyone who is worthy to receive it."

52 Moshe Narboni, *Be'ur le-sefer More nevukhim*, ed. J. Goldenthal, Wien, K. k. Hof- und Staatsdruckerei, 1852, fols 64r–v (on *GP*, III. 51).

53 MS Oxford, Bodleian Library, Opp. 585, fols 24v–25r: וביחוד עניין דניאל בגוב אריות וחנניה מישאל ועזריה בתוך כבשוהאש כי לא יסבול שיהיה עניין נבואיי זולת הנגלה המפורסם // על כן צדק המפרש הנזכ׳ באמרו כי איננו אז מטבע ההויה וההפסד על כן יזיק לו לא אש ולא מים / לא חיות רעות אלה שלח מלאכיה וסגר פום אריותא. See also Visi, *On the Peripheries of Ashkenaz*, p. 220–223.

of the Lord by Gersonides, and also quoted arguments taken from al-Ghazzālī's *Intentions of the Philosophers* (translated into Hebrew as *Kawanot ha-filosofim*), a work for which he also produced glosses that survive in the same manuscript[54].

In Part Two of the treatise, Menaḥem offered further guidance towards achieving the worship mentioned by Maimonides in the *Guide* III. 51. In contrast to chapter I. 3, where he only summarized Maimonides's argument regarding the prerequisites necessary for achieving philosophically informed worship, in this part Menaḥem delved into more details, likening the relationship between his instruction and Maimonides's instruction to the relationship between Ezekiel's and Isaiah's descriptions of the divine chariot mentioned in *GP* III. 6. According to Menaḥem, Isaiah's description was brief because his contemporaries were "spiritual people" (*anshei ruaḥ*), while Ezekiel's listeners, already living in exile, needed a more detailed description of the divine chariot[55]. Analogically, Menaḥem's generation would benefit from more detailed instruction regarding the preconditions necessary for philosophical worship, presumably because they lacked the ethical qualities of their predecessors.

The basis for Menaḥem's outline of these preconditions was a rabbinic text taken from the *Mishnah* (mSoṭ 9:15), which quotes rabbi Pinḥas ben Ya'ir, a second-century Tannaitic sage. Rabbi Pinḥas describes a sequence of virtues that gradually bring about the second coming of Elijah and the resurrection of the dead[56]. Menaḥem claimed that his attention was drawn to this text by his friend Avigdor Ḳara, who suggested it might be identical to the text referred to in the Talmud as *Seder Eliyahu* (lit. "the order of Elijah"), and that its instruction was relevant for the philosophical worship discussed by Maimonides in the *Guide*, III. 51[57]. Menaḥem

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54 MS Oxford, Bodleian Library, Opp. 585, fols 99r–199r.

55 MS Oxford, Bodleian Library, Opp. 585, fols 34r–v: אמ׳ מנחם ואולם ההבדל בין זה הבאור ובין באור שעשינו בעניין השלישי מחלק הראשון הוא ששם לא ביארנו כי אם הישרת הרב לבד והוא ההרגל והלמוד / לפנות המחשבה בהרבות הבדידות וההפרדות // ובכאן נבאר ההישרה אשר נצטרך אליה בזמנינו זה והוא סגוף הגוף ושמירתו בטהרה ובנקיות כמו שזכרנו בסוף העניין השלישי מח״א // וידמה יחס הישרתינו להישרת הרב ע״ה ליחס באור יחזקאל עניין המרכבה לבאר ישעיה עניין המרכבה // וזה שאמ׳ הרב פ״ו ח״ג שישעיהו לא היו אנשי רוח צריכים לבאר להם הפרט ההוא ובני הגולה היו צריכי׳ לפרט זה / גם ישעיהו יהיה יותר שלם מיחזקא׳ / Cf. bḤag 13b.

56 "With the footprints of the Messiah presumption shall increase and dearth reach its height; the vine shall yield its fruit, but the wine shall be costly; and the empire shall fall into heresy and there shall be none to utter reproof. The council-chamber shall be given to fornication. Galilee shall be laid waste and Gablan shall be made desolate; and the people of the frontier shall go about from city to city with none to show pity on them. The wisdom of the Scribes shall become insipid and they that shun sin shall be deemed contemptible, and truth shall nowhere be found. Children shall shame the elders, and the elders shall rise up before the children, *for the son dishonoureth the father, the daughter riseth up against her mother, the daughter-in-law against her mother-in-law: a man's enemies are the men in his own house* [Mic 7:6]. The face of this generation is as the face of a dog, and the son will not be put to shame by his father. On whom can we stay ourselves? – on our Father in heaven. R. Phineas ben Jair says: Heedfulness leads to cleanliness, and cleanliness leads to purity, and purity leads to abstinence, and abstinence leads to holiness, and holiness leads to humility, and humility leads to the shunning of sin, and the shunning of sin leads to saintliness, and saintliness leads to [the gift of] Holy Spirit, and the Holy Spirit leads to the resurrection of the dead. And the resurrection of the dead comes through Elijah of blessed memory." English translation quoted from H. Danby, *The Mishnah*, Oxford, Oxford University Press, 1933, p. 306.

57 MS Oxford, Bodleian Library, Opp. 585, fol. 34v: אמר מנחם ב״ר יעקב ימים רבים נבוכותי בהוראת העניין הנכפל בדברי רז״ל והוא אמרם סדר אליהו דלא הוה ידיעה לי מאי היא / עד כי שלח לי אחי הגדול ה״ר אביגדור קרא

then interpreted this rabbinic text as a philosophical allegory, which in its first part describes the condition when the overflow of the divine intellect is blocked in potentiality and not actualized, or when it affects only the human imaginative faculty due to some defect in the rational faculty. The outpouring of the divine influence on the imaginative faculty of the uneducated, who are described by Maimonides as "legislators, the soothsayers, the augurs and the dreamers of veridical dreams", can produce "extraordinary visions, dreams, and amazed states"[58]. Menaḥem claimed that such people then believe that they communicate with Elijah and receive true knowledge of science without study and the need for demonstrative proof[59]. This confusion is alluded to in the Mishnaic dictum by the images of destruction and desolation. Menaḥem repeatedly emphasized that such dangers are not rare – he recalled how he met "an innocent [also: simple-minded] and upright man, fearing God, who told [him] how Elijah visited him and told him things which cannot be true"[60]. He also noted that he himself experienced wild visions when he was held captive by Christians for eighteen weeks and ate only dry bread[61].

According to Menaḥem, in order to direct the divine overflow properly, it is necessary to achieve control over one's desires and pursue philosophical study hand in hand with practices of self-mortification. In the seven following chapters, Menaḥem therefore explains the desirable qualities mentioned in the *Mishnah* that a student of philosophy must acquire, linking them all to the text of the *Guide*. According to Menaḥem, to perform the true worship of God as stipulated by Maimonides, philosophical study must be accompanied by fasting, abstinence from sexual intercourse, and intensive mental concentration on metaphysical topics:

> A man of science who wants to guide himself towards this perfection [mentioned by Maimonides] needs to accustom himself to acquire to his soul these eight qualities explained above, namely heedfulness, cleanliness, abstinence, purity, holiness, humility, shunning of sin and saintliness. The [common] root of all these qualities is that he should strive to reduce his material needs, food, drink and the rest of the bodily pleasures, and to remove the desires and control his heart so that he does not even long for things which are allowed. He should bind himself to this by oaths and solemn promises to make fences around this [i.e. to avoid activities that could lead to temptation] – he should avoid gatherings [of people] around food and drink, so that [in the end] he does not eat with anyone outside of his house, not even for the purpose of obligatory festive meal. It is crucial that he should not pursue glory, that he should turn his thought and desire from authority and rulership, which are not

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הידוע / מתניתא מצא במשניות ישנות סוף מסכ׳ סוטה והאיך מתניתא עוררתני על הוראת עניין זה / ואני חפשתי בגמרות ישנות ולא מצאתיה במשנה לכך נראה לי דתוספתא היא.

58 Cf. *GP*, II:37 (transl. Pines, p. 374).

59 MS Oxford, Bodleian Library, Opp. 585, fol. 36r.

60 MS Oxford, Bodleian Library, Opp. 585, fol. 36r: וכבר פגשני איש תם וישר ירא אלהי׳ והגיד לי איך אליהו ז״ל היה אצלו והגיד לו מה שהיה סותר האמת.

61 MS Oxford, Bodleian Library, Opp. 585, fol. 23r–v: ולי אני הצעיר באלפי הגיעני ג״כ זה העניין בנסיון בהיותי עצור במגדל קשה שמונה עשר שבועו׳ ולא אכלתי רק לחם יבש לבד עד נהייתי כמעט משוגע ובאו לי פליאות וטרופי׳ בחלום ובהקיץ לא ישוערו / אבל אין ספק אצלי שהיה מעט בר עם התבן.

> real, namely from seeking to rule over other people and to make them acknowledge his greatness, admire and serve him. Rather, he should see all people as animals and not care to receive honors from them. He should consider the masses of uneducated people as bad and dangerous animals, so much so that he would not socialize with ordinary people except for the most necessary reasons. […] Finally, he should direct his desire to know the secrets of the existence [of the world] and of its causes and of the attributes of the Exalted one and of His holy names, and how to conduct himself and act in the world, how things exist from their first beginning, how the causes and the things which are caused are ordered, and how they all ascend to the one cause of all causes, and especially the matters that we shall explain with God's help in the following third part [of this treatise]. He should accustom himself to study it often so that he will concentrate on these matters very forcefully. In our time, most people will not be able to accomplish this, except through great self-denial, eating of bread and drinking of water or light drink and through mortification of flesh by lying on a hard surface and staying in isolation and by constant reading of scientific books, until the mind does not desire anything except divine matters. A man of such qualities will undoubtedly be protected by great individual providence […][62].

For Menaḥem, the mystical and ascetic dimension was the focal point of the philosophical pursuit and he seems to have consciously highlighted these motifs in Maimonides's writings. This attitude is further underscored in the third part of the treatise, which is devoted to the different names of God in Hebrew and their mystical properties, which is a subject also discussed briefly by Maimonides in the *Guide*[63]. This part originally contained six chapters, but only two chapters survive, and the rest of the treatise is now lost.

In the first chapter, Menaḥem examines the Tetragrammaton and the "great secret" that is, according to Maimonides, associated with this special Divine name[64].

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62 MS Oxford, Bodleian Library, Opp. 585, fols 42r–v: והנה מי שירצה מאנשי החכמ׳ להישיר עצמו לזאת התכלית / ירגיל עצמו לקנות לנפשו השמנה מדות אשר קדם ביאורם / והם זהירות נקיות פרישות טהרה קדושה ענוה יראת חטא חסידות / ושורש כל אלה המדות שישתדל לחסר צרכי החמר ממאכל וממשת׳ ומיתר התעונגי׳ הגופניים וירחיק התאוות ויכניע לבבו עד שלא ישתוקק למותרות כלל ויקבל עליו זה בשבועו׳ ונדרי׳ אין שיוכל לעשות לזה סייגים יעשה והוא שיתרחק עצמו מן הקבוץ על המאכל והמשתה עד שלא יאכל עם אדם חוץ לביתו ואפי׳ בסעודת מצוה / ועיקר העניין שלא ירדוף אחר הכבוד כלל / ויבטל מחשבתו ותשוקתו לרשויות ולשררות שאינם אמתיות ר״ל בקשת הנצוח או הגדיל העם לו והמשיך כבודם אליו ועבודתם אותו // אלא יראה האנשי׳ כלם כבהמות עד שלא יחוש על הכבוד מהם // ויראה המון עמי ארץ כחיות רעות מזיקות עד לא ישתתף עם אדם המוני כי אם לצורך מצרכיו ההכרחיים מאד // אמ׳ ר״ל ת״ח שלא ידבר עם עם <ה>ארץ הרי הוא כקיתון של זהב / וכשידבר עמו הרי הוא כקיתון של כסף / וכשיאכל כל וישתה עמו הרי הוא כקיתון של חרס ח״ו אם נשבר אין לו תקנה // סוף דבר לא יהיו תשוקותיו רק לדעת סודות זה המציאות וידיעת סיבותיו וידיעת תארי הראשו׳ ית׳ ושמותיו הקדושי׳ והנהגתו ופעלתו בעולם / ואיכות מציאות הדברים מן ההתחלה הראשונ׳ איכות סידור הסבות והמסובבים ואיכות עליתם אל אחד שהוא מסבב כל הסיבות / וביחוד העיון בענייני׳ אשר נבאר בג״ה ית׳ בחלק השלישי שיבא אחר זה / וירגיל עצמו לעיין בו תדיר עד שיהיה שוקדני על אותם העניינים בשקידה חזקה וזה לא ישלם לרוב אדם בזמנינו זה כי אם בסיגוף גדול באכילת לחם ושתיית מים או שכר קל ובהצטערות הגוף בשכיבה קשה ובבדידות והפרדות רב / ובקריאתו תמיד בספרי׳ המחוברי׳ בחכמו׳ עד שלא ישתוקק במחשבתו לדבר אחר זולתי לענייני׳ האלהיים / והאיש אשר זה תארו אין ספק שיושגח בהשגחה פרטית עצומה.

63 *GP*, I. 61–64.

64 *GP*, I. 62 (transl. Pines, p. 150): "The men of knowledge have transmitted this, I mean the mode of pronouncing [the Tetragrammaton], but they did not teach it to anyone except once a week to a worthy

According to Menaḥem, he had struggled for a long time to identify this secret, until he realized that it must refer to the twenty-six premises of Aristotelian physics and metaphysics laid down by Maimonides in his introduction to Part Two of the *Guide*. For Maimonides, these premises served as the basis for his proof of the existence of God and his incorporeality. Because the numeric value of the Hebrew letters forming the Tetragrammaton – *yod*, *he*, *waw*, *he* – is twenty-six, God's true nature, which is being revealed in this unique name, is according to Menaḥem available only to those who have internalized the elementary axioms of Aristotelian science[65]. The following chapter is therefore dedicated to a summary of Maimonides's twenty-six propositions, which is based primarily on Narboni's commentary. The chapters discussing further divine names taken from the Jewish tradition (the names containing twelve and forty-two letters, the name "I am that I am", *Shaddai*), and presumably offering their philosophical interpretation, are unfortunately lost.

This brief summary makes it clear that Menaḥem ben Jacob Shalem approached philosophical inquiry in a specific way. Menaḥem emphasized the mystical and ascetic elements of Maimonidean teachings and presented the pursuit of Aristotelian science as a solitary, esoteric pursuit, the purpose of which is primarily to achieve Divine protection and mystical union with God[66]. The Ashkenazic turn to philosophical material could therefore be seen as part of the process of the diversification of esoteric currents in Ashkenazic culture after the Black Death, as described by Israel Yuval and Tamás Visi[67]. The tendency to blur the boundaries between rationalism and mysticism, and the interest in new ways to interpret the established elements of Jewish tradition, were characteristic not only of Menaḥem, but also of his contemporaries, such as Ḳara, Mühlhausen and Simeon ben Samuel of Regensburg[68].

5. The Transmission and Dissemination of Menaḥem's Texts

To conclude this brief survey, a closer look at the activities of the scribes who disseminated Menaḥem's works in the course of the fifteenth century will help us assess the influence of his philosophical interests upon later generations of Ashkenazic Jews. As we shall see, Ashkenazic manuscript owners and copyists who transmitted

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scholar. I believe that the dictum 'the sages transmit the name having four letters once a week to their sons and pupils' refers not only to their teaching the mode of pronouncing this name, but also to their making known the notion because of which this name has been originated without any derivation. Accordingly, there also would be in this notion a great secret."

65 MS Oxford, Bodleian Library, Opp. 585, fols 45v–46r.

66 A. Altmann, "Das Verhältnis Maimunis zur jüdischen Mystik", in *Monatsschrift für Geschichte und Wissenschaft des Judentums*, 80-4 (1936), p. 305–330.

67 I. J. Yuval, "Magie und Kabbala unter den Juden im Deutschland des ausgehenden Mittelalters", in K.-E. Grözinger (ed.), *Judentum im deutschen Sprachraum*, Frankfurt am Main, Suhrkamp, 1991, p. 173–189; Visi, "Plague, Persecution, and Philosophy", p. 90–95.

68 Davis, "Philosophy, Dogma, and Exegesis in Medieval Ashkenazic Judaism", p. 220–221; Kaufmann, *Rabi Yom Ṭov Lipman Mihlhoyzn: ba'al ha-niẓaḥon, ha-ḥoḳer we-ha-meḳubal*, p. 36–44.

Menaḥem's texts were active in areas east of Prague, in Lesser Poland. While the surviving manuscripts attest to the fact that interest in the study of the *Guide of the Perplexed,* accompanied by esoteric commentaries as well as other philosophical texts, persisted during the fifteenth century, there is also evidence that its impact upon "mainstream" Ashkenazic culture was much more limited than suggested by Kupfer.

Two manuscripts containing the larger portion of Menaḥem's works, namely a collection of various philosophical texts including the treatise discussed above (MS Oxford, Bodleian Library, Opp. 585) and a copy of Narboni's commentary on the *Guide* with glosses by Menaḥem (MS Oxford, Bodleian Library, Opp. 573), were copied by the same scribe, Yeruḥam ben Solomon Fischl. MS Oxford, Bodleian Library, Opp. 585 was copied between 1465 and 1467 in the towns of Jarosław and Sandomierz, and apart from Narboni's commentary accompanied by Menaḥem's glosses it also contains the latter's glosses on al-Ghazzālī's *Intentions of the Philosophers*, a text which gained popularity among Jewish scholars in the fourteenth century as a handy collection of different philosophical opinions[69].

Almost twenty-five years after finishing this collection of philosophical texts, in 1490, Yeruḥam ben Solomon copied Moses Narboni's commentary on the *Guide of the Perplexed* accompanied by numerous glosses, some (but not all) signed with the name Menaḥem ben Jacob. In the meantime, the scribe had moved to the nearby town of Hrubieszów, where according to the colophon he copied the book for a certain rabbi Jacob, "may the Supreme [Lord] grant him to obtain the crown of wisdom and the understanding of secrets and may he see the wonders of his Torah"[70]. According to a note added to the colophon in a different hand, Jacob's daughter Rachel later sold the book to a certain Yeḥi'el ben Simeon. Since notes written by the owners of the manuscript in the first half of the sixteenth century mention a certain Eleazar of Hrubieszów, it seems that the manuscript stayed in the area of its origin for some time. It should be noted, however, that the manuscript contains few later glosses, so the extent to which it was read and studied remains open to question.

When copying Menaḥem's glosses to Maimonides and Narboni, Yeruḥam ben Solomon seems to have used an older text. One older manuscript containing Menaḥem's glosses on Narboni's commentary is now located in the Library of the Russian Academy of Sciences in St Petersburg[71]. The St Petersburg manuscript contains the text of the *Guide*, Narboni's commentary, and a number of marginal glosses, again both signed and anonymous. Some of the signed glosses are attributed to an otherwise unknown Joseph "called the Intelligent" (*Josef ha-niḳra' Maśkil*)[72].

The manuscript was clearly intended as a handbook for the study of the *Guide of the Perplexed*. In addition to the text of the *Guide* and Narboni's commentary on it,

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69 S. Harvey, "Why Did Fourteenth-Century Jews Turn to Alghazali's Account of Natural Science?", in *The Jewish Quarterly Review*, 91-3/4 (2001), p. 359–376.

70 MS Oxford, Bodleian Library, Opp. 573, fol. 227v: כתירהו העליון להחכים להבין תעלומות, ולראות מתורתו נפלאות להיות לשם לתפארת ולתהלה ולשמר עמו עד יפאר ענוים בישועה.

71 MS St Petersburg, Russian Academy of Sciences, C 47 [IMHM F 69303].

72 MS St Petersburg, Russian Academy of Sciences, C 47 [IMHM F 69303], fols 7r–12v, 13v, 81v, 147v, 157v. Joseph's gloss on fol. 12r contains a summary of the contents of the *Guide of the Perplexed*.

it contains the commentaries of Joseph ibn Kaspi (*ʿAmudei ha-kesef*) and Shem Tov ibn Falaquera (*Moreh ha-moreh*), Samuel ibn Tibbon's *Explanation of Foreign Terms* (*Perush milot zarot*) and the Hebrew translation of Maimonides's *Treatise on Logic* (*Milot ha-higayon*), as well as parts of his *Commentary on the Mishnah*. Originally, the manuscript also contained *Ruaḥ ḥen*, a popular introductory handbook to the study of Aristotelian science written by an anonymous Provençal Jewish scholar in the thirteenth century, and several minor works of scientific and mystical nature, including the Hebrew translation of Johannes de Sacrobosco's *De sphaera*[73]. This part was later bound with another manuscript; its colophon, however, still refers to the manuscript as a copy of Narboni and *Ruaḥ ḥen*[74]. It is thanks to this colophon that we are able to identify the scribe, a certain Judah ben Jacob, and the date of its production, 1457.

The scribe Judah ben Jacob copied philosophical texts for other owners as well. In 1440, Judah copied Jacob Anatoli's Hebrew translation of Averroes's Long and Middle Commentaries on *Posterior Analytics* for a certain Eliezer ben Joseph[75]. In 1446, he copied a whole collection of Averroes's Middle Commentaries on Aristotle's works of natural philosophy (*De caelo et mundo*, *De generatione et corruptione*, *Meteorologica*, *Book IX of Historia animalium*) for an owner identified as Yeḥiʾel Katz[76]. Notably, Yeḥiʾel Katz's name is appended to one of the glosses in the Oxford manuscript Opp. 573; however, the same gloss appears without attribution in the St Petersburg manuscript[77].

The manuscript of Narboni and *Ruaḥ ḥen* was copied for a certain Abraham ben Solomon ha-Sefardi ("the Spaniard"). Abraham himself added glosses to Narboni's and Kaspi's commentaries in his own hand[78]. Furthermore, two folios written in Abraham's hand contain a number of verses and short poems containing the name Abraham or Abraham ben Solomon in acrostic. One poem is a versed summary of the thirteen basic principles of faith of Maimonides. Another is particularly enlightening, as it provides a glimpse of the life of someone who seems to have been a Sephardic intellectual in Eastern Europe. In the poem, Abraham laments the fate of a man, presumably himself, who was "blown about by the wind of time, taken out from the sheath of scholars and thrown into the rugged climate of the land called *Rus*". He complains that

> the wandering is heavy upon him [...], he resides among a nation that is full of hatred toward him and wrath which is burning like a sudden flame. Their voices resemble [the voices of] ostriches, their faces [the faces of] wolves in the woods and

73 On *Ruaḥ ḥen*, see O. Elior, *Ruaḥ ḥen yaḥalofʿal panai: Yehudim, madaʿu-ḳeriʾah, 1210–1896*, Jerusalem, Mekhon Ben-Ẓevi, 2016.

74 MS Cambridge, MA, Harvard University, Heb. 38 [IMHM F 34447], fols 59r–89r. For the colophon, see fol. 68v.

75 MS Oxford, Bodleian Library, Opp. 143 [IMHM: F 22390].

76 MS Philadelphia, University of Pennsylvania, Schoenberg Collection, Ljs 453 [IMHM: F 4709], fols 1r–250v.

77 MS Oxford, Bodleian Library, Opp. 573, fol. 48r.

78 MS St Petersburg, Russian Academy of Sciences, C 47, fol. 42v, 65r, 101v, 231r.

> of apes. When they see among themselves an intelligent man, they become jealous of him and ask him: "What is your business here[79]?"

More importantly, Abraham clearly had access to Menaḥem's writings, for he copied an excerpt from Menaḥem's treatise discussed above in a marginal gloss[80]. It seems, therefore, that at least some of the glosses attributed to Menaḥem ben Jacob in the two manuscript copies of Maimonides and Narboni were excerpted from his longer treatises by later students or copyists[81]. In other words, it is likely that Menaḥem's comments in his longer treatises, interwoven as they are with extensive quotations from Maimonides and Narboni, were at a later stage rearranged to follow the structure of the *Guide* and turned into marginal glosses. Such interaction would show that Menaḥem's texts were being used in the mid-fifteenth century as a textbook of sorts for the study of Maimonidean philosophy.

One of the glosses written in Abraham's hand refers to a teaching concerning the Divine name which was received from "rabbi Ḥasdai of Barcelona"[82]. It seems likely that Abraham refers to an interpretation he received himself, but the identity of rabbi Ḥasdai is unclear – it seems unlikely that it could have been Ḥasdai Crescas, who died in 1410[83]. In any case, the presence of Abraham, a Spanish Jew, in Eastern Europe gives evidence of intellectual transfer between Ashkenazic and Sephardic areas in the fifteenth century. However, as his poetic complaints clearly suggest, Abraham's intellectual pursuits were far from widespread in his newly adopted home.

Finally, one should also examine the possible connection between Ashkenazic students of Menaḥem's texts and Maimonidean philosophy in general, and the group of translators from Hebrew to Ruthenian who in the late fifteenth century created a corpus sometimes labeled "the literature of the Judaizers"[84]. It is noteworthy that at least two texts translated to Ruthenian from Hebrew, namely Johannes de Sacrobosco's *De sphaera* and Maimonides's *Treatise on Logic*, are included in Judah ben Jacob's manuscript containing Menaḥem's glosses on Narboni, while

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79 MS Cambridge, MA, Harvard University, Heb. 38, fol. 69r: אבוי בראות רוח הזמן מתנועע / ומניע גבר מנדן המשכילי׳ שלפו // להשליכו באקלים נעוץ ורעוץ / באדמת רוס וכעומר הניפו // והכביד הנדוד עליו ואין לו מעורר בלעדי ילדי סעיפו // ועם העם אשר שנא וזעם / השכינו וכאש מקרי שרפו // אשר ידמו בקולם ליענים / פניהם דמות זאב יער וקופו׳ // בראותם אנוש נבון בתוכם // יקנאו בו ויאמרו לו מה לך פה //.

80 MS St Petersburg, Russian Academy of Sciences, C 47, fol. 50v. The excerpt in question concerns the interpretation of the secret of the Tetragrammaton discussed above.

81 The passage cited above, n. 53, is reproduced as a gloss in MS Oxford, Bodleian Library, Opp. 573, fol. 225r. Similarly, Menaḥem's polemical glosses against Kabbalah, cited by Kupfer, "Li-demutah ha-tarbutit shel yahadut Ashkenaz we-ḥakhmeiha ba-me'ot ha-14–15", p. 122–123, are in fact excerpted from a longer letter concerning the philosophical interpretation of sacrifices (MS Oxford, Bodleian Library, Mich. Add. 25, fols 65r–85r). See M. Žonca, *Difference and Intellectual Diversity in Late Medieval Ashkenaz, 1350–1500*, London, Diss. Queen Mary, University of London, 2015, p. 95–126.

82 MS St Petersburg, Russian Academy of Sciences, C 47, fol. 49v.

83 For this suggestion, see Visi, "Plague, Persecution, and Philosophy", p. 95.

84 M. Taube, "Transmission of Scientific Texts in 15th-Century Eastern Knaan", in *Aleph*, 10-2 (2010), p. 315–353; M. Taube, "Jewish-Christian Collaboration in Slavic Translations from Hebrew", in V. Izmirlieva, B. Gasparov (eds.), *Translation and Tradition in "Slavia Orthodoxa"*, Zürich, LIT Verlag, 2012, p. 26–45.

al-Ghazzālī's *Intentions of the Philosophers*, also partially translated into Ruthenian from Hebrew under the title *The Book Called Logic* (*Книга глаголємая Логика, сиречь Словесница*, also known as *The Logika of the Judaizers*), can be found in Yeruḥam ben Solomon's Oxford manuscript with Menaḥem's comments. According to Moshe Taube, the Slavic translator of the *Logika* probably used a "very close ancestor" of the Oxford manuscript as his model[85]. As Taube has noted, the translator of the text known as the *Logika of the Judaizers* was a learned Jew with an impressive knowledge of medieval philosophy, who often added explanatory glosses into his translation[86]. Further examination of the *Logika*, which lies beyond the scope of this article, should establish whether the text used by the Jewish translator also contained Menaḥem's glosses on the *Intentions*. This would in turn contribute to a better understanding of the later reception of philosophical texts produced by Ashkenazic Jewish scholars active in late medieval Prague.

85 *Logika of the Judaizers: a Fifteenth-Century Ruthenian Translation from Hebrew: Critical Edition of the Slavic Texts presented alongside their Hebrew Sources*, ed. M. Taube, Jerusalem, Israel Academy of Sciences and Humanities, 2016, p. 140.

86 Taube, "Jewish-Christian Collaboration in Slavic Translations from Hebrew", p. 38.

HANA ŠEDINOVÁ

Ut dicit Aristoteles: The Enigmatic Names of Animals in Michael Scot, Thomas of Cantimpré and Claret*

The years which followed the founding of the University in Prague saw the creation of several Latin-Czech glossaries associated with the Czech scholar Bartholomew of Chlumec (Bartholomaeus de Solencia in Latin, Bartoloměj z Chlumce in Czech, fl. 1360), which later proved to be a valuable source for the Dictionary of Medieval Latin in the Czech Lands (*Latinitatis medii aevi lexicon Bohemorum*)[1]. Among the thousands of words recorded in these glossaries there are several hundred animal names, which include a special group of very peculiar terms that appear at various points in all the chapters dedicated to animals. The origins and meanings of these words have not been explained until recently[2], and some of them have remained a mystery to this day. Where do these animal names come from, and how did they enter the Czech environment?

Little is known about the author of these glossaries himself[3]. His real name, Bartholomaeus de Solencia, is known to us from the acrostic in his *Glossary*[4]. The

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1 *Latinitatis medii aevi lexicon Bohemorum*, Praha, Academia; Koniash Latin Press, 1977–; V. Flajšhans (ed.), *Klaret a jeho družina* [Claret and His Retinue], vol. I (*Vocabularius, Bohemarius, Glossarius, Complexionarius, Medicaminarius*), vol. II (*Physiologiarius, Enigmaticus, Astronomiarius, Exemplarius*), Praha, Česká akademie věd a umění, 1926–1928.

2 See esp. brief analyses of zoological terms, published in *Listy filologické* (*Folia philologica*) since 2012 in the series *From the Dictionary of Medieval Latin in Czech Lands*. For analyses of some other enigmatic names of animals from Claret's *Glossary* see also below, nos. 52, 57, 63, 70, 83, 84, and 87.

3 For details on the author and his educational and writing activity, see esp. V. Flajšhans, "Klaret", in *Listy filologické*, 50 (1923), p. 232–244; A. Wesselski, *Klaret und sein Glossator. Böhmische Volks- und Mönschsmärlein im Mittelalter*, Brno / Prague / Leipzig / Wien, R. M. Rohrer, 1936; A. Vidmanová, "Prolegomena k latinským spisům Mistra Klareta [Prolegomena to Master Claret's Latin Works]", in *Listy filologické*, 101 (1978), p. 193–207; A. Vidmanová, "Mistr Klaret a jeho spisy [Master Claret and His Works]", in *Listy filologické*, 103 (1980), p. 213–223.

4 Claret arranged the contents of his *Glossary* into fifty-five chapters, each initiated with a capital letter. These initials together form the acrostic "A Bohemario Bartholomeo dicto Clareto de Solencia compilatus est iste libellus."

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Studying the Arts in Late Medieval Bohemia: Production, Reception and Transmission of Knowledge, ed. by Ota Pavlíček, Turnhout, 2021 (Studia Artistarum, 48), p. 49–70

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same text documents his pseudonym *Claretus* (Klaret), which is also incorporated in a riddle in his *Enigmaticus*[5], and mentioned in later glosses on his writings[6]. The title *magister* implies that Claret could have been one of the first people to achieve a Master's degree at the Arts Faculty of the newly founded Prague University, although the title *magister* might simply mean "teacher", and it may have nothing to do with a conferred university degree. It is assumed that Claret was the schoolmaster (*magister scholae*) of one of the most influential schools in the country – the St. Vitus School. After finishing the elementary course, students of the school continued to the secondary level, which was designed primarily to prepare them for university studies. To facilitate this, Claret composed several Latin-Czech glossaries containing terms from the fields of liberal arts, medicine, law, and theology. Inspired by medieval encyclopedias, he also included numerous other terms from various fields of study, as well as ordinary life[7]. Many of them relate to natural science, including zoology[8].

The author dedicated several chapters to individual animal groups already in his *Bohemarius* (c. 1360), producing a list of Latin and Czech names denoting several dozen species of fish, birds, quadrupeds, reptiles, and insects. A few years later, Claret substantially extended his zoological terminology in his *Glossary* (1365)[9]. The dictionary lists about eight hundred animal names, including about fifty Latin-Czech pairs of very unusual terms that can be found neither in other texts by Claret nor in any other Czech literary sources of the time. At first glance, it seems unlikely that the words are of Latin or Greek origin (e.g. *abareno*, *achimeda*, *albirus*, *amiram*, *ana*, *ascoa*, *astara*, *barchora*, *caab*, *comor*, *dariaca*, *duranus*, *fastaleon*, *fatator*, *fetix*, *furion*, *galalta*, *gracocenderius*, *ibos*, *kiche*, *kiloka*, *kuna*, *ludolachra*, *mauricon*, *morion*, *rugana*, *rutela*, *zybo*, and so on).

When looking for the origin of such zoological terms, it is reasonable to begin with the authors mentioned by Claret as his sources of inspiration in the chapters on animals; however, he did not draw on most of them at all. The works of John of Garland or Eberhard of Béthune[10] do not contain descriptions of animals, and the authors who discuss animals extensively, such as Ambrose of Milan, Pliny the

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5 Claretus, *Enigmaticus*, vv. 316–318: "Cum Lavat Alta Ratis Estum, Tunc Unde Sciatis / Dans Omen Carpit, Tangens Omnes Rapit, est hic: / litera sic sumpta CLARETUM dat fore prima."

6 For instance, the commentary to Claret's *Exemplarius* begins with the words "Incipit exemplarius auctorum, liber exempla narrans, a magistro Clareto de Solencia compilatus."

7 See e.g. Claretus, *Glossarius*, the chapters: *De ferculis*, vv. 1785–1853; *De vestibus*, vv. 1854–1939; *De domo*, vv. 1940–2006; *De utensilibus*, vv. 2007–2081; *De armis*, vv. 2144–2186; *De artificibus*, vv. 2496–2596; *De nautis*, vv. 2641–2669, and so on.

8 See e.g. the various terms from the fields of botany, mineralogy, and teratology; Claretus, *Glossarius*, the chapters: *De lapidibus*, vv. 122–160; *De monstrosis hominibus*, vv. 303–37; *De arboribus*, vv. 604–639; *De plantis*, vv. 640–677; *De fructibus arborum*, vv. 678–714; *De herbis ignotis*, vv. 808–859, etc.

9 The author arranged the names of animals into the following chapters: *De altilibus domesticis*, vv. 203–244; *De volatilibus campestribus*, vv. 245–302; *De piscibus*, vv. 374–428; *De blandis monstris*, vv. 429–462; *De bestiis*, vv. 497–550; *De nominibus serpentum*, vv. 551–574; *De nominibus vermium*, vv. 575–603.

10 Claretus, *Glossarius*, v. 244: "Has dat aves omnes de Galandria Iohannes."; v. 428: "Hec dat […] Heberhardus Bituniensis."

Elder, or Solinus[11], never mention any of these obscure animal names. Yet, one source mentioned by Claret is significant. The *liber rerum* cited at the end of the chapter *De bestiis*[12] is the encyclopedia entitled *Liber de natura rerum*, written by Thomas of Cantimpré between the years 1230 and 1245[13]. Of its twenty books, Thomas dedicated six (IV–IX) to the animal kingdom, describing approximately five hundred animals. Among them, we can find all fifty of the unusual names included in Claret's *Glossary*. In the fourteenth and fifteenth centuries, Thomas's encyclopedia was popular in the Czech lands, and the Archive of the Prague Castle still houses a copy made in the first half of the fourteenth century; it is very likely that this copy was available to Claret, who may have used it during his years at the St. Vitus School[14].

The identification of Claret's source for this group of animals was an important step forward. The enigmatic Latin names and some of their equally enigmatic Czech equivalents, existing as mere words with no perceptible context, suddenly became ingrained in captivating stories about animals exhibiting some quite remarkable features both in their appearance and behavior. The descriptions by Thomas of Cantimpré inspired not only later encyclopedists and other authors writing in both Latin and vernacular languages[15], but also illustrators of his work, who created splendid and often also curious or even bizarre visual interpretations[16]. For instance, the creature represented by Claret's pair of terms *galalta zeliprss* in the chapter *De blandis monstris* turned from a shadowy monster into a marine animal that has a peculiar way of delivering its young: the female pulls the newborn out of her belly with her mouth, and if she finds it unfit for life, she pushes it back in again to let it develop (Fig. 1)[17]. Similarly, the animal denoted by the pair *zybo russcz* from

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11 Claretus, *Glossarius*, v. 302: "Ambrosius, Plinius volucres dedit hasque Solinus."

12 Claretus, *Glossarius*, v. 550: "In libro rerum potes hoc congnoscere verum."

13 Thomas Cantimpratensis, *Liber de natura rerum*, ed. H. Boese, Berlin / New York, Walter de Gruyter, 1973. See Flajšhans, "Klaret", p. 237; Vidmanová, "Mistr Klaret a jeho spisy", p. 221.

14 MS Prague, KMK, M 159, fols 1r–57r; Vidmanová, "Mistr Klaret a jeho spisy", p. 219.

15 Esp. Albert the Great, Vincent of Beauvais, Conrad of Megenberg, and Jacob van Maerlant.

16 Out of ten extant (as far as we know) illuminated codices of the work, five are of Bohemian origin, and MS Prague, NK ČR, XIV A 15, is dated to approximately 1350, i.e. the time when Claret wrote his works. This copy is very similar to the oldest illuminated codex from the late thirteenth century, which is currently kept in Valenciennes (MS Valenciennes, Bibliothèque Municipale, 320 [c. 1290]). For information on the relationship between this manuscript and MS Prague, NK ČR, XIV A 15, see D. A. Gatewood, *Illustrating a Thirteenth-Century Natural History Encyclopedia: The Pictorial Tradition of Thomas of Cantimpré's De natura rerum and Valenciennes Municipal Library Manuscript 320*, unpublished doctoral thesis, University of Pittsburgh, 2000. See also other illuminated manuscripts of Bohemian origin: MS Prague, KMK, L 11 (1404); MS Prague, NK ČR, X A 4 (1400–25); MS Cracow, BJ, 794 (1440); MS Wrocław, Biblioteka Uniwersytecka, R 174 (1450–1500); and the illuminated manuscripts of non-Bohemian origin: MS Vatican, BAV, Pal. Lat. 1066 (1424); MS Bruges, Openbare Bibliotheek, 411 (1450–1500); MS Würzburg, Universitätsbibliothek, M. ch. f. 150 (1456); MS Granada, Biblioteca Universitaria, C-67 (fifteenth century).

17 Thomas Cantimpratensis, *Liber de natura rerum*, VI. 25: "Galalca monstrum est marinum, ut dicit Aristotiles […]. Hoc animal cum senserit fetus suos in alvo vivere, extrahit eos de ventre suo […]. At ubi fetus extraxerit, si quidem ad vitam maturos eos invenerit, relinquit foris. Sin autem, reponit eos in matricem et sibi reddit, ut foveat."; Claretus, *Glossarius*, v. 443: "galalta zeliprss"; MS Prague, NK ČR,

Fig. 1: *Galalca*. MS Prague, NK ČR, XIV A 15, fol. 87ra

the chapter *De bestiis* is no longer just an unknown quadruped, but a cruel beast that unearths graves and feeds on corpses (Fig. 2), and lures people and dogs into ruin by imitating their voices and barking[18].

Could these pictures in the illuminated copies of Thomas's encyclopedia provide a clue to determining the identity of these animals both in Thomas's and Claret's works, and eventually solve the mystery of Claret's Czech equivalents[19]? I believe they can't. Most of Thomas's descriptions are relatively true to the original features of the discussed animals, so we should not presume they could mislead the illuminators – but although the medieval illustrators most probably had a reasonable idea about the real appearances and behaviors of many animals, they usually

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XIV A 15, fol. 87ra (Fig. 1). See also, e.g., MS Valenciennes, Bibliothèque Municipale, 320, fol. 115vb; MS Prague, NK ČR, X A 4, fol. 122ra; MS Vatican, BAV, Pal. Lat. 1066, fol. 111ra; MS Cracow, BJ, 794, fol. 145vb, et al.

18 Thomas Cantimpratensis, *Liber de natura rerum*, IV. 111: "Zybo animal est crudele nimium in mortem hominum et bestiarum […]. Voces hominum imitatur et hiis plerumque vocibus deludit homines eius malitiam ignorantes. Delitescens enim in abditis silvarum vocabulo aliquo edoctus sollicitat homines transeuntes, quos, ut prope venerint, depredatur. Sepulchra etiam mortuorum ingreditur et ibi cadaverum spurcitiis delectatur […]. Canes etiam hoc modo deludit: latratus eorum imitatur, et cum eum canes audierint, suspicantur socium et, cum approximaverint, a zibonibus discerpuntur. Dicunt nonnulli, quod zibo de genere hyene bestie est […].; Claretus, *Glossarius*, v. 460: "zybo russcz"; MS Prague, NK ČR, X A 4, fol. 84rb. See also e.g. MS Valenciennes, Bibliothèque Municipale, 320, fol. 83ra; MS Prague, NK ČR, XIV A 15, fol. 62rb (Fig. 2). For more detail about the name *zybo* see n. 47.

19 Some Czech researchers believed that Claret was inspired by the illustrations in some of the copies of Thomas's encyclopedia (see n. 16), rather than by the text itself; see Flajšhans, "Klaret", p. 237; V. Flajšhans, "Podrobná data [Detailed Data]", in V. Flajšhans (ed.), *Klaret a jeho družina*, vol. I, p. 91.

Fig. 2: *Zibo*. MS Prague, NK ČR, XIV A 15, fol. 62rb

exemplified only one or more characteristic features of the animals in a very condensed visual interpretation, rather than representing their origin and identity. For example, the bird called *hamraham*[20] is depicted on the top of a mountain with two eggs in its nest ("nidificat super montes"; Fig. 3)[21], or as a bird of prey pecking at the head of a dead man ("carnibus enim vivunt"; Fig. 4)[22], or as a bird accompanying a military troop ("hee aves sequuntur exercitus propter cadavera")[23]. These pictures can hardly reveal the true identity of the bird, a vulture in this case, although the latter two illuminations together with the mention of its scavenging nature can give us a significant clue. It is almost certain that the identity of the bird was unknown to Claret, who spells its Latin name *amiram*, and adds the Czech equivalent *hornuss*, clearly inspired by Thomas's information that the bird nests in the mountains (cf. Czech *hora*, "mountain")[24].

Well then, in what sense is the fact that Claret took his knowledge from the encyclopedia by Thomas of Cantimpré so important? Thomas himself gives the answer to this question. In nearly every chapter of his encyclopedia, he names the author or work from which he has taken the relevant information. This way, we learn that his source for the unclear animal names was Aristotle. Thomas stresses the importance

20 Thomas Cantimpratensis, *Liber de natura rerum*, V. 11: "Hamraham avis est orientis, ut dicit Aristotiles, que nidificat super montes, ubi non potest homo ascendere; et ideo non invenitur nidus eius, pulli vero rarissime […]. Hee aves sequuntur exercitus propter cadavera: carnibus enim vivunt […]." For more detail about the name *hamraham* see n. 46.

21 MS Prague, NK ČR, X A 4, fol. 89rb (Fig. 3).

22 MS Prague, NK ČR, XIV A 15, fol. 65vb (Fig. 4).

23 MS Valenciennes, Bibliothèque Municipale, 320, fol. 87vb.

24 Claretus, *Glossarius*, p. 294: "amiram hornuss".

Fig. 3: *Hamraham*. MS Prague, NK ČR, X A 4, fol. 89rb

of Aristotle's works not only in the preface to his encyclopedia[25], but also in individual chapters: almost every introduction to a chapter contains the phrase "ut dicit Aristotiles"[26]. Thus, the first step towards identifying the animals hidden behind these names should be a comparison of Thomas's descriptions with the respective accounts by Aristotle.

1. Aristotle's *Historia animalium* in Arabic and Latin Translations

Although Thomas claimed to have drawn information about these animals from Aristotle, it is quite difficult to find the relevant passages in the original of the *Historia animalium*, his main source of animal names and descriptions. Roman and medieval authors divided animals into several categories, usually quadrupeds,

25 Thomas Cantimpratensis, *Liber de natura rerum*, *Prologus*: "[…] Primus omnium Aristotiles est, qui non solum in hiis, verum etiam in omnibus ad philosophicam disciplinam pertinentibus eminentior cunctis effloruit."

26 Thomas Cantimpranensis, *Liber de natura rerum*, IV. 9: "Ahanes animal est, ut dicit Aristotiles"; V. 72: "Kym avis est magna, ut dicit Aristotiles"; VI. 2: "Abydes animal marinum est, ut dicit Aristotiles"; VII. 3: "Alphoraz piscis est, ut dicit Aristotiles", and so on. The author only skips this phrase in several chapters inspired by Aristotle (IV. 111: "zybo"; V. 47: "fatator"; V. 53: "gracocenderon"; V. 64: "iboz"; V. 65: "incendula"). In some cases, he quotes the translator of Aristotle's text, rather than Aristotle himself (V. 5: "Agothilez […] Dicit enim Michael"; VI. 19: "Equonilus, ut dicit Michael"), or he refers to the treatise *Experimentator* that conveyed Aristotle's ideas (VI. 23: "Focha bos marinus, ut dicit Experimentator"); for more about this work see J. Deus, *Der Experimentator – eine anonyme lateinische Naturenzyklopädie des frühen 13. Jahrhunderts*, Hamburg, Diss. Universität Hamburg, 1998.

Fig. 4: *Hamraham*. MS Prague, NK ČR, XIV A 15, fol. 65vb

birds, fish, reptiles and worms. Aristotle's system, on the other hand, was much more complex, distinguishing nine groups of animals, five with (red) blood and four without. He focuses first on the outer and inner organs of specific animals within each group (*Historia animalium* I–IV); then the manner of reproduction (*Historia animalium* V–VII); and finally their habits, behavior and character, especially their means of subsistence, migration, intelligence, and social behavior (*Historia animalium* VIII–IX)[27]. The structure of the work is rather complicated; the same animal can be mentioned at several points from different perspectives. In addition, the names of the animals as recorded in Thomas's encyclopedia provide little guidance, because they are usually spelled differently from the original, sometimes nearly beyond recognition (e.g. αἴλουρος × *furionz*; φήνη × *kym*; ἄνθος × *iboz*; γύψ × *hamraham*; σπόγγος × *rugana*). In some cases, Aristotle's animals turned into completely different creatures in Thomas's work; thus, an effort to trace, for instance, a specific bird in Aristotle's chapters on birds would be fruitless if the creature was originally a fish[28].

In spite of these barriers, modern researchers have succeeded in identifying a number of source passages in Aristotle's work. Hermann Stadler, the editor of

27 On Aristotle's classification of animals, see esp. J. B. Meyer, *Aristoteles Thierkunde. Ein Beitrag zur Geschichte der Zoologie, Physiologie und alten Philosophie*, Berlin, Georg Reimer, 1855; P. Louis, "Remarques sur la classification des animaux chez Aristote", in *Autour d'Aristote. Recueil d'études de philosophie ancienne et médiévale offert à Monseigneur A. Mansion*, Louvain, Publications universitaires, 1955, p. 297–304; P. Pellegrin, *La classification des animaux chez Aristote*, Paris, Les Belles Lettres, 1982; A. Zucker, *Aristote et les classifications zoologiques*, Louvain la Neuve / Paris, Dudley MA: Éditions Peeters, 2005.

28 See n. 69–70.

the treatise *De animalibus* by Albert the Great, did the greatest part of work[29]. Independently of Stadler's achievement, Bohumil Ryba, the former head of the *Latinitatis medii aevi lexicon Bohemorum* team, identified the origin of some of the Latin names listed by Claret in the 1940s[30]. Additional passages were traced by the authors of two English translations of Albert's *De animalibus*[31] and other researchers[32]. Still, several passages and names of unknown (or incorrectly identified) origin and/or meaning remained[33].

Modern researchers gradually uncovered the intermediaries between Aristotle's Greek text and Thomas's encyclopedia, which explains the curious development of all the expressions in question, although, as far as is known to the present author, no one has analyzed the individual names and their reception in medieval encyclopedias and other texts. What are the routes that these animal names traveled from Aristotle's treatises to the European Middle Ages, and what influenced the metamorphosis of their original forms?

Aristotle's findings reached Medieval Latin readers in several different ways. The first was via Roman, Patristic, and early medieval authors, especially Pliny the Elder, Basil of Caesarea, Ambrose of Milan, and Isidore of Seville. None of these authors, however, mentioned any of the obscure animal names from Thomas's encyclopedia and Claret's glossary. The next period of intense enrichment of the corpus of Latin animal names comes in connection with the Latin translations of Aristotle's three main zoological texts *Historia animalium*, *De partibus animalium* and *De generatione animalium*. Encyclopedists of the thirteenth century used the Latin versions created by Michael Scot in Toledo before the year 1220. Unlike William of Moerbeke, who translated the same work from Greek in the 1260s[34], Michael translated from an Arabic version[35]. To understand the ways in which the original

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29 Albertus Magnus, *De animalibus libri XXVI*, ed. H. Stadler, 2 vols, Münster, Aschendorffsche Verlagsbuchhandlung, 1916 and 1920.

30 B. Ryba, "Několik nejasných latinsko-českých dvojic jmen ptáků v Klaretově Glosáři [Several Unclear Latin-Czech Pairs of Names of Birds in Claret's Glossary]", in *Listy filologické*, 67 (1940), p. 320–333; B. Ryba, "K nejstarším latinsko-českým slovníkům [On the Oldest Latin-Czech Dictionaries]", in *Listy filologické*, 69 (1942), p. 1–19, 123–127, 233–244.

31 Albertus Magnus, *Man and the Beasts. De animalibus (Books 22–26)*, tr. J. J. Scanlan, New York, Binghamton, 1987; Albertus Magnus, *On animals. A Medieval Summa Zoologica*, 2 vols, tr. K. F. Kitchell, I. M. Resnick, Baltimore / London, The Johns Hopkins University Press, 1999.

32 C. Hünemörder, "Der Text des Michael Scot um die Mitte des 13. Jahrhunderts und Thomas Cantimpratensis III", in C. Steel, G. Guldentops, P. Beullens (eds.), *Aristotle's Animals in the Middle Ages and Renaissance*, Leuven, Leuven University Press, 1999, p. 238–248.

33 E.g. *ana*, *astoas*, *barchora*, *caab*, *cornica*, *incendula*, *fatator*, *koki*, *rugana*, *rutela*, and others.

34 Aristoteles, *De historia animalium (translatio Guillelmi de Morbeka), Pars prima: lib. I–V*, eds. P. Beullens, F. Bossier, Leiden / Boston / Köln, Brill, 2000; Aristoteles, *De generatione animalium (translatio Guillelmi de Moerbeka)*, ed. H. J. Drossaart Lulofs, Bruges / Paris, Brill, 1966.

35 A part of Michael Scot's translation was published by B. K. Vollmann (Aristoteles, *De animalibus libri XIX in der Übersetzung des Michael Scotus, Buch I–XIV*, Manuskript gedruckt mit Unterstützung der Münchener Universitätsgesellschaft e. V., 1994). The critical edition of books IV–X (= *Historia animalium*) is being prepared by A. van Oppenraay in the Aristoteles Semitico-Latinus Series, who has previously published books I–III (= first part of *Historia animalium*), XI–XIV (= *De partibus animalium*) and books XV–XIX (= *De generatione animalium*); see Aristoteles, *De animalibus. Michael Scot's*

standard Greek terms turned into the unintelligible words found in medieval texts, it is necessary to look at basic facts about the Greek original and the translations of Aristotle's treatise:

a) The extant manuscripts of the original Greek texts contain numerous variations, many concerning animal names. In some cases, the forms of the names in the Arabic, and subsequently in the Latin translation, are based on variants that later editors of the Greek text rejected, using a different variant or their own conjecture[36].

b) Several Syriacisms in the Arabic text suggest that there might have been a Syrian intermediary between the Greek original and its Arabic translation, which is not preserved[37]. If this were the case, the translator into Arabic would have depended on the words denoting these animals in the Syrian translation[38].

c) Although there is a manuscript containing an Arabic translation of Aristotle's three main zoological treatises almost in their entirety, and another manuscript comprising a part of the work[39], neither represents the version used by Michael

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Arabic-Latin Translation, Ia (*Books I–III: History of Animals*), ed. A. M. I. van Oppenraay, Leiden / New York / Köln, Brill, 2020; Aristoteles, *De animalibus. Michael Scot's Arabic-Latin Translation*, III (*Books XV–XIX: Generation of Animals*), ed. A. M. I. van Oppenraay, Leiden / New York / Köln, Brill, 1992; Aristoteles, *De animalibus. Michael Scot's Arabic-Latin Translation*, II (*Books XI–XIV: Parts of Animals*), ed. A. M. I. van Oppenraay, Leiden / Boston / Köln, Brill, 1998. On Michael Scot, his translation of Aristotle's *De animalibus* and his influence on later encyclopedic literature see, e.g., C. H. Haskins, *Studies in the History of Mediaeval Science*, New York, Frederick Ungar, 1960, p. 272–298; C. Burnett, "Michael Scot and the Transmission of Scientific Culture from Toledo to Bologna via the Court of Frederick II Hohenstaufen", in *Micrologus*, 2 (1994), p. 101–126; B. van den Abeele, "Le *De animalibus* d'Aristote dans le monde latin: modalités de sa réception médiévale", in *Frühmittelalterliche Studien*, 33 (1999), p. 287–318.

36 See e.g. Aristoteles, *Historia animalium*, I. 1 (487b5); the critical editions by L. Dittmeyer (Leipzig, Teubner, 1907), P. Louis (Paris, Les Belles Lettres, 1964) and A. L. Peck (Cambridge Mass. / London, Loeb, 1965) replace the variant ἀσπίδων in manuscripts Aa and Ca with the conjecture ἀσκαρίδων. Michael Scot spelled the word *ambides*, William of Moerbeke used the spelling *aspidibus*, which indicates that both proceeded from the reading ἀσπίδων; Aristoteles, *De animalibus*, I. 487b5 (ed. van Oppenraay, p. 8); Aristoteles, *De historia animalium (translatio Guillelmi de Morbeka)*, I. 1, 487b6 (p. 8). On the form of the Greek term see G. Rudberg, *Textstudien zur Tiergeschichte des Aristoteles*, Upsala, Akademische Buchdruckerei, Edv. Berling, 1908, p. 97; S. Zierlein, *Aristoteles, Historia animalium, Buch I und II*, Berlin, Wissenschaftliche Buchgesellschaft, 2013, p. 142–143. On the form of the term in the extant Arabic version, see J. den Heijer, "Syriacisms in the Arabic Version of Aristotle's Historia animalium", in *Aram*, 3 (1991), p. 97–114 (esp. p. 101). Michael Scot's variant *ambides* inspired Thomas Cantimpratensis, *Liber de natura rerum*, VI. 2: "abides", "abydes"; see also Claretus, *Glossarius*, v. 439: "abies" (A, *abides* B).

37 J. Brugman, H. J. Drossaart Lulofs, "Introduction", in Aristoteles, *Generation of Animals. The Arabic Translation commonly ascribed to Yaḥyâ ibn al-Bitrîq*, eds. J. Brugman, H. J. Drossaart Lulofs, Leiden / Boston, Brill, 1971, p. 1–70 (in particular p. 2); R. Kruk, "Introduction", in *Aristoteles Semitico-Latinus. The Arabic Version of Aristotle's Parts of Animals. Book XI–XIV of the Kitāb al-Ḥayawān*, Amsterdam / Oxford, Brill, 1979, p. 9–48 (esp. p. 14 and 24).

38 Heijer, "Syriacisms", p. 101–104; he relates especially to the manner in which the Greek letters β, χ, γ, τ and κ were interpreted in Syrian.

39 Aristotle's treatises *Historia animalium*, *De partibus animalium* and *De generatione animalium* were joined together in the Arabic translation to form a large corpus of 19 books known as the *Kitāb al-ḥayawān* (Book of Animals) or *Kitāb ṭabā'i' al-ḥayawān* (Book of the Natures of Animals). The first part titled Aristoteles, *Ṭibā' al-ḥayawān*, prepared by Lourus S. Filius et al. in the Aristoteles Semitico-Latinus

Scot[40]. This is clear from certain passages in the Arabic version, which contain Arabic equivalents of the original animal names, while Michael Scot's Latin version uses terms that have simply been transliterated from Greek. This shows that the terms must have been left untranslated in the Arabic version Scot was using[41].

d) Unlike the Arabic translation, Michael Scot's Latin version survived in several dozen manuscripts[42]. The Latin version added further distortions to the modifications resulting from the Arabic translation. Alternative forms of the animal names can be found in different manuscripts, often varying to the extent that, as editor Aafke van Oppenraay points out, it is sometimes nearly impossible to trace the primary spelling used by Michael Scot[43].

2. Aristotle's Animal Names in Translations of his Zoological Treatises

The extant Arabic version contains animal names translated in two ways. The names of the more common animals are often replaced with their Arabic equivalents (see a and b), while rarer terms that were most likely unknown to the translator were merely transcribed (see c), with the transcriptions reflecting the phonetic differences between Greek (or Syrian) and Arabic, as well as the variability of the transcription of certain phonemes[44]. All of this is reflected in the Latin translation.

Series, encompassed the ten books of the *Historia animalium* (the source of animal names for both Thomas of Cantimpré and subsequently Claret); see *The Arabic Version of Aristotle's* Historia animalium. *Book I–X of the Kitāb Al-Hayawān*, ed. L. S. Filius, in collaboration with J. den Heijer and J. N. Mattock, Leiden / Boston, Brill, 2019.

40 A. van Oppenraay, "Introduction", in Aristoteles, *De animalibus. Michael Scot's Arabic-Latin Translation*, II (*Books XI–XIV: Parts of Animals*), xi–xxv (esp. p. xvi); L. Filius, "The Arabic Transmission of the *Historia animalium* of Aristotle", in A. Vrolijk, J. P. Hogendijk (eds.), *O ye Gentlemen: Arabic Studies on Science and Literary Culture (In Honour of Remke Kruk)*, Leiden / Boston, Brill, 2007, p. 25–33. The Arabic translation is analyzed in detail by Brugman, Drossaart Lulofs, "Introduction", p. 2–37. See also Kruk, "Introduction", p. 24–31.

41 See n. 54, on the names *karane* and *coroni*.

42 See the list of the manuscripts in van Oppenraay, "Introduction", in Aristoteles, *De animalibus. Michael Scot's Arabic-Latin Translation*, II (*Books XI–XIV: Parts of Animals*), p. xxiii–xxv.

43 van Oppenraay, "Introduction", xvii–xxiii (p. xx). Concerning Michael Scot's translation and the preparation of the critical edition see the studies of A. van Oppenraay, esp.: "Michael Scot's Arabic-Latin Translation of Aristotle's Book on Animals", in C. Steel, G. Guldentops, P. Beullens (eds.), *Aristotle's Animals in the Middle Ages and Renaissance*, Leuven, Leuven University Press, 1999, p. 31–43; "The Letter before the Spirit: The Importance of Text Editions for the Study of the Reception of Aristotle", in *Bulletin de Philosophie Médiévale*, 51 (2009), p. 263–280; "An editorial problem concerning the first two books of Aristotle's *Historia animalium* in the translation by Michael Scot", in P. De Leemans, C. Steel (eds.), *The Aristoteles Latinus: Past, Present, Future. Handelingen van het Contactforum 29–30 April 2005*, Brussel, Koninklijke Vlaamse Academie van Belgie voor Wetenschappen en Kunsten, 2009, p. 59–65; "The Critical Edition of Aristotle's *De animalibus* in the Arabic-Latin Translation of Michael Scot. Its Purpose and Its Significance for the History of Science", in A. van Oppenraay, R. Fontaine (eds.), *The Letter before the Spirit. The Importance of Text Edition for the Reception of Aristotle*, Leiden / Boston, Brill, 2012, p. 331–344.

44 Editors of the Arabic translation highlight the interchangeability of *-s-* and *-ṣ-* in particular, a characteristic feature of Middle Arabic, and the alternation of *-š-* with *-ẖ-*. E.g. the Greek word σελάχη, which made

Michael Scot adopted the same strategy as the translator(s) before him: if he knew an Arabic term, he replaced it with a classical Latin word, e.g.:

(a)

κορώνη	> *ġudāf*	> *corvus*[45].

On the other hand, unfamiliar Arabic animal names (see b) and the words that were merely transcribed from Greek to Arabic (see c) were subsequently transcribed into the Latin script. Scot's transcriptions reflect the phonetic differences between Arabic and Latin (e.g. emphatic *ḍād* > *z*), the variability of transcription (e.g. *kāf*, *qāf* > both *k* and *c*; final *sīn* > both *s* and *z*), and the fact that the Arabic source text was not vocalized, which left Scot to add Latin vocals at his own discretion. See e.g.:

(b)

γύψ	> *raḫam(a)*, *'ar-raḫam(a)*	> *raham*, *rahaam*, *harraham*[46],
ὕαινα	> *ḍab'*	> *zabo*[47],

(c)

κίττα	> *qiṣā*, *qisā*	> *kiche*, *citita*[48],
γλάνις	> *'aġlānīs*	> *glanieuz*[49],
σελάχη	> *salāšī*, *ṣalāḫī* (*et al.*)	> *celechi*, *celeti*[50].

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its way to Thomas's encyclopedia *De natura rerum* (VI. 11: "celethi") and Claret's *Glossary* (v. 441: "celetus"), is spelled as *salāḫī* or *ṣalāḫī*, but also as *salāšī* or *ṣalāšī*. On transcriptions of these and other consonants, see Brugman, Drossaart Lulofs, "Introduction", p. 34; Kruk, "Introduction", p. 29 and 82; den Heijer, "Syriacisms", p. 101–104. The Arabic language also lacks the consonant *p* and graphemes for the short vowels *y*, *o* and *e*. The translator into Arabic usually replaced the Greek letter *pi* with the Arabic letter *bā'* (e.g. πορφύρα > *būrfūrā*). Greek vocals *ypsilon* and *omicron* (and also the long *omega*) were transliterated with the Arabic semi-vowel *wāw*, and *eta* was usually replaced with the semi-vowel *yā'*.

45 See n. 51.

46 Aristoteles, *Historia animalium*, VI. 5 (563a5–12), and IX. 11 (615a8–14); Aristoteles, *Ṭibā' al-ḥayawān*, VI. 563a5–6: "raḫama", "'ar-raḫama", VIII. 615a9–10: "raḫama", "'ar-raḫam"; Aristoteles, *De animalibus*, VI. 563a5–11 (ed. Vollmann, p. 90): "harraham", "raham"; VIII. 615a9–10 (ed. Vollmann, p. 137): "raham", "rahaam"; Thomas Cantimpratensis, *Liber de natura rerum*, V. 11: "hamraham"; Claretus, *Glossarius*, v. 294: "amiram hornuss". See also nos. 20–23 and Fig. 3–4.

47 Aristoteles, *Historia animalium*, VIII. 5 (594a31–b5); Aristoteles, *Ṭibā' al-ḥayawān*, VII. 594a31; Aristoteles, *De animalibus*, VII. 594a32–b4 (ed. Vollmann, p. 112); Thomas Cantimpratensis, *Liber de natura rerum*, IV. 111: "zybo, zibo"; Claretus, *Glossarius*, v. 460: "zybo russcz". See also n. 18 and Fig. 2.

48 Aristoteles, *Historia animalium*, IX. 3 (615b19–23 and 616a3); Aristoteles, *Ṭibā' al-ḥayawān*, VIII. 615b19: "qiṣā", and VIII. 616a3: "qisā"; Aristoteles, *De animalibus*, VIII. 615b20 (ed. Vollmann, p. 138): "kiche", and 616a4 (ed. Vollmann, p. 138): "citita". The first of Aristotle's passages used by Thomas Cantimpratensis, *Liber de natura rerum*, V. 73: "kyches"; see also Claretus, *Glossarius*, v. 268: "kichus poluk".

49 Aristoteles, *Historia animalium*, IX. 37 (621a21); Aristoteles, *Ṭibā' al-ḥayawān*, VIII. 621a21; Aristoteles, *De animalibus*, VIII. 621a21 (ed. Vollmann, p. 145); Thomas Cantimpratensis, *Liber de natura rerum*, VI. 26: "glamanez"; Claretus, *Glossarius*, v. 446: "gamena zendirz".

50 See n. 44.

None of the two translations applies the above-specified methods consistently; the same term is sometimes translated and sometimes transcribed in the Arabic version, and Scot later continued in the same vein – alternately translating or transcribing Arabic terms, and transcribing the words that had been transcribed from Greek to Arabic. This is how the original Aristotle's term κορώνη took four different Latin forms in the Latin text:

κορώνη	> *ġudāf*	> *corvus*[51],
κορώνη	> *ġudāf*	> *incendula*[52],
κορώνη	> *ġudāf*	> *guudef*[53],
κορώνη	> **qaranī, *kūrūnī*	> *karane, coroni*[54].

Arabic scribes also left out dots that are crucial in distinguishing certain letters with identical basic signs (e.g. *bāʾ* × *yāʾ* × *nūn* × *tāʾ* × *ṯāʾ*; or *sīn* × *šīn*; or *ḥāʾ* × *ḫāʾ* × *ǧīm*; or *fāʾ* × *qāf* and *qāf* × *fāʾ*)[55]. It is therefore hardly surprising that Michael Scot often read the signs without dots in a different way than the phonetic structure of the original Greek name would require.

ἀθερίνη	> *ʾaṯārīnī*	> *abereni* (*ṯ* × *b*)[56],
ἄνθος	> *ʾanṯas, ʾanṯūs*	> *iboz, ibos* (*n-ṯ* × *b*)[57],
φήνη	> *fīnī*	> *kini* (*f* × *q* > *k*)[58].

51 Aristoteles, *Historia animalium*, IX. 1 (609a8–12): "κορώνη, τῆς κορώνης"; Aristoteles, *Ṭibāʿ al-ḥayawān*, VIII. 609a8–11: "ġudāf" (4×); Aristoteles, *De animalibus*, VIII. 609a10: "corvus", 609a11 (ed. Vollmann, p. 129): "corvi, corvus".

52 Aristoteles, *Historia animalium*, IX. 1 (609a8–12): "κορώνη", "τῆς κορώνης"; Aristoteles, *Ṭibāʿ al-ḥayawān*, VIII. 609a8–11: "ġudāf" (4×); Aristoteles, *De animalibus*, 609a8 (ed. Vollmann, p. 129): "incendula"; Thomas Cantimpratensis, *Liber de natura rerum*, V. 65: "incendula"; Claretus, *Glossarius*, v. 284: "incedula wihonir". For more detail see H. Šedinová, "Incendula or monedula? An Enigmatic Bird Name in Medieval Latin-Written Sources", in *Archivum Latinitatis Medii Aevi (Bulletin du Cange)*, 74 (2016), p. 89–109.

53 Aristoteles, *Historia animalium*, II. 17 (509a1); Aristoteles, *Ṭibāʿ al-ḥayawān*, II. 509a1; Aristoteles, *De animalibus*, II. 509a1 (ed. van Oppenraay, p. 94).

54 Aristoteles, *Historia animalium*, VIII. 3 (593b14), and IX. 1 (609a17); Aristoteles, *De animalibus*, VII. 593b14 (ed. Vollmann, p. 111): "karane – et est hachas", and VIII. 609a17 (ed. Vollmann, p. 129): "coroni". The Arabic translation uses *ġudāf* in both instances, see Aristoteles, *Ṭibāʿ al-ḥayawān*, VII. 593b13, and VIII. 609a17. This passage proves Michael Scot used a different version of the Arabic translation, in which the Greek name was transcribed – most likely as *qrny* (= *qaranī*) and *kwrwny* (= *kūrūnī*) respectively.

55 H. J. Drossaart Lulofs, "Preface", in Aristoteles, *De animalibus. Michael Scot's Arabic-Latin Translation*, III (*Books XV–XIX: Generation of Animals*), VII–XV (p. XIV, n. 7).

56 Aristoteles, *Historia animalium*, VII. 17 (571a6–7); Aristoteles, *Ṭibāʿ al-ḥayawān*, VI. 571a6: "ʾaṯārīnī"; Aristoteles, *De animalibus*, VI. 571a6–7 (ed. Vollmann, p. 99): "abereni"; Thomas Cantimpratensis, *Liber de natura rerum*, VII. 9: "abarenon"; Claretus, *Glossarius*, v. 412: "abareno biesen".

57 Aristoteles, *Historia animalium*, IX. 1 (609b14–19 and 610a6–8); Aristoteles, *Ṭibāʿ al-ḥayawān*, VIII. 609b14: "ʾanṭas", and VIII. 610a6: "ʾanṭūs"; Aristoteles, *De animalibus*, VIII. 609b15–19 (ed. Vollmann, p. 130): "iboz, ibos", and VIII. 610a6–8 (ed. Vollmann, p. 130): "iboz", but also "inoz". The first of Aristotle's passages used by Thomas Cantimpratensis, *Liber de natura rerum*, V. 64: "iboz"; see also Claretus, *Glossarius*, v. 277: "konur ibos". For more detail see H. Šedinová, "Anthův střet s koněm a jeho odraz ve středověkých encyklopediích a glosářích [The Conflicts of the Anthus with the Horse and their Reflection in Medieval Encyclopedias and Glossaries]", in *Listy filologické*, 137 (2014), p. 7–39.

There are even words with multiple confused letters, such as the Greek word κόττυφος in which Michael Scot replaced the initial letter *qāf* with *f*, while the central letter *fā'* was read as *qāf* and transcribed with *c*:

κόττυφος > *qaṭūfūs* > *fatocor* (*q* × *f*; *f* × *q*)[59].

3. Aristotle's Animal Names and Descriptions in Thomas of Cantimpré's *Liber de natura rerum*

What was the response of medieval authors to the incomprehensible words in Michael Scot's translation? Medieval encyclopedists, such as Thomas of Cantimpré, Albert the Great or Vincent of Beauvais, never read the Greek original of Aristotle's treatise *Historia animalium* or its Arabic translation. They understood the words with odd spellings simply as exotic terms, without paying much attention to their etymology[60]. Thomas of Cantimpré regarded these animals (especially birds) as species living somewhere in the eastern countries[61], and his assumption was occasionally reproduced by authors who used his encyclopedia as a source of information[62].

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58 Aristoteles, *Historia animalium*, IX. 34 (619b23–34); Aristoteles, *Ṭibā' al-ḥayawān*, VIII. 619b23; Aristoteles, *De animalibus*, VIII. 619b23 (ed. Vollmann, p. 143); Thomas Cantimpratensis, *Liber de natura rerum*, V. 70: "kym"; Claretus, *Glossarius*, v. 273: "kuna cznoch".

59 Aristoteles, *Historia animalium*, V. 13 (544a25–29); Aristoteles, *Ṭibā' al-ḥayawān*, V. 544a27; Aristoteles, *De animalibus*, V. 544a25 (ed. Vollmann, p. 79); Thomas Cantimpratensis, *Liber de natura rerum*, V. 47: "fatator"; Claretus, *Glossarius*, v. 298: "fatator neczanek".

60 For instance, in his chapter on the bird *agothilez* Thomas Cantimpratensis, *Liber de natura rerum*, V. 5, maintains that it is an Arabic term: "Dicit enim Michael, qui transtulit librum Aristotelis de animalibus, quod agothilez arabice, latine dicitur sugens lac caprarum." See also Vincentius Bellovacensis, *Speculum naturale*, XVI. 24 (Douai, 1624; repr. Graz, 1964–1965): "Agochiles Arabice dicitur, Latine caprimulgus. Est enim avis orientis magna […]." Albert the Great, on the other hand, usually identified these words as Greek terms, e.g. *De animalibus*, XXIII. 4: "Agothylez Graece, Latine caprimulgus vocatur."; and VIII. 95: "Avis autem quaedam Graece vocata agotiles […]. Latine autem vocatur caprimulgus."

61 See, e.g., Thomas Cantimpratensis, *Liber de natura rerum*, IV. 9: "Ana animal est orientis […]."; V. 42: "Dariata, ut dicit Aristotiles, avis orientalis est […].; VI. 42: "Kalaoz piscis marinus est, ut dicit Aristotiles […], qui in orientis partibus invenitur."; VIII. 29: "Rutela serpens est orientis […]." See also IV. 71: "mauricomorion"; V. 11: "hamraham"; V. 47: "fatator"; V. 53: "gracocenderon"; V. 64: "iboz"; V. 65: "incendula"; V. 71: "karkolaz"; V. 72: "komor". The reference to eastern countries can be found neither in the Greek original, nor in Scot's translation.

62 See e.g. Vincentius Bellovacensis, *Speculum naturale*, XVI. 73: "Ex libro de natura rerum: Fatator est avis in Oriente."; Conradus Megenbergensis, *Das Buch der Natur*, ed. R. Luff, G. Steer, Tübingen, Max Niemeyer Verlag, 2003, III. B. 32: "Gracocendron […] Daz ist ain vogel in den landen gegen der sunnen aufganch."; Iacobus de Maerlant, *Der naturen Bloeme*, ed. M. Gysseling, Den Haag / Antwerpen, CD-rom, Sdu Uitgevers/Standaard Uitgeverij, 1998, vv. 1115–1116: "Ana spreect aristotiles / dat in orienten .i. dier est." Albertus Magnus, *De animalibus*, often expressed some suspicion, see, e.g., XXII. 15: "Ana autem animal dicunt esse Orientis."; XXIII. 110: "Fatator avis esse dicitur Orientis."; and in some chapters (e.g. *daryatha*, *gracocenderon*, *karkoloz*, *komer*) he omitted this assertion entirely. But see also, on the other hand, XXIII. 4: "Agothylez Graece, Latine caprimulgus vocatur, et est avis magna […] in Orientis partibus habundans."

Thomas rarely copied Michael Scot's spelling exactly; as far as can be judged based on a simple comparison of both texts, neither of which has been subject to a critical edition. While some words underwent only minor modifications (*abereni* > *abarenon*; *harraham* > *hamraham*), there are numerous cases of substantial distortions in spelling (*albuz* > *albirez*; *in gamen* > *rugana*; *akaleki* > *kylok*; *danakilis* > *dariata*; *fehita* > *fetix*; *almacoz* > *linachos*). Moreover, Thomas misinterpreted several parts of Aristotle's work considerably, which subsequently influenced the visual representations of the creatures in illuminated copies of his encyclopedia and related works. Sometimes he compiled an account about a single animal using two passages from Aristotle that described completely different creatures[63]. Sometimes Thomas dealt with one and the same animal in more than one place. For instance, the name of the seal (φώκη) was transcribed into Arabic as *fūqī*; Michael Scot then used two different transcriptions at two different points, *foka* and *koki*. No wonder Thomas of Cantimpré considered these to be two distinct marine animals, and described each in a separate chapter of Book VI of his encyclopedia. As a result, the illuminations inspired by Thomas's text depicted two dissimilar animals. The *focha*, or *bos marinus*, was characterized as a fierce animal, with the male fighting its female until he kills her[64]. It was depicted as a bull (with horns, covered in scales and its forelegs ending in hands) that attacks and wounds its female until she is bleeding (Fig. 5)[65]. On the other hand, when painting the sea monster *koki*, illuminators were captivated by the detail that the creature had nipples (*mamillae*)

63 For example, the passage on the sea animal called *barchora* combines two successive passages of Aristotle's original: the first is about murex snails (Greek πορφύρα > Arabic *barfūrā, būrfīrā* etc.), the second about the sea turtle. Aristoteles, *Historia animalium*, VIII. 2 (590b2–3): "πορφύρα", and VIII. 2 (590b3–9): "αἱ χελῶναι αἱ θαλάττιαι"; Aristoteles, *De animalibus*, VIII. 590b1–2 (ed. Vollmann, p. 107): "Et animalia, que moventur et comedunt animalia, cibantur a piscibus parvis, sicut barcora." (Michael Scot read the Arabic *fāʾ* as *qāf* and transcribed the letter as *c*); "quoniam ipse comedit pisces parvos […].; and VIII. 590b2–5: "Et tortuca marina comedit kokile, et orificium eius est fortius omni ore cuiuslibet animalis, quoniam si acceperit lapidem cum suo ore, accipiet ipsum et frangit ipsum et exit ad ripam et pascitur herbis […]."; Thomas Cantimpratensis, *Liber de natura rerum*, VI. 5: "Barchora, ut dicit Aristotiles, animal marinum est et comedit pisces parvos. Orificium huius animalis est os fortius omni ore animalis cuiuslibet, quoniam si acceperit lapidem in ore suo, frangit eum. Hoc animal quandoque exit ad ripam et herbas depascit […].; Claretus, *Glossarius*, v. 435: "barchora zubrnik". For more detail see H. Šedinová, "I nomi dei mostri marini nell'enciclopedia De natura rerum di Tommaso di Cantimpré (Riepilogo)", in Thomas Cantimpratensis, *De monstris marinis – Mořská monstra* [De monstris marinis – Sea Monsters], ed. and tr. (into Czech) H. Šedinová, Prague, OIKOYMENH, 2008, p. 307–335 (esp. p. 324–325).

64 Aristoteles, *Historia animalium*, IX. 1 (608b22–25): "φώκη"; Aristoteles, *Ṭībāʿ al-ḥayawān*, VIII. 608b22: "fūqī"; Aristoteles, *De animalibus*, VIII. 608b24 (ed. Vollmann, p. 128): "[…] animal, quod dicitur foka […], semper pugna[n]t, ita etiam, quod mas pugnat cum femina, quousque unus interficiat alium […]."; "et similiter faciunt filii eorum" (Michael Scot identified the final letter *yā* as *alif maqṣūra*, and ended the word in *a*); Thomas Cantimpratensis, *Liber de natura rerum*, VI. 23: "Focha bos marinus est […]. Animal fortissimum est in suo genere […]. Animal animosum et iracundum est, nec ad alia animancia, sed suis domesticis […]. Pugnat enim semper cum femina sua, quoadusque interficiat eam […]."; Claretus, *Glossarius*, v. 447: "focale krnap" (*krvap* emend. Ryba, cf. Czech *krev*, "blood").

65 MS Prague, NK ČR, X A 4, fol. 121vb (Fig. 5).

Fig. 5: *Focha*. MS Prague, NK ČR, X A 4, fol. 121vb

and nursed its young[66]. Therefore, they pictured either a biped fish with the head of a beast and with breasts (Fig. 6)[67], or a quadruped with scaly skin and an udder (Fig. 7)[68].

Although the pictures of the *focha* and *koki* show some features of a terrestrial biped or quadruped, the animals were able to retain the characteristics of sea creatures, both in Thomas's encyclopedia and in the works of the authors who used his encyclopedia as their source. Their descriptions can be found in books or chapters on fish and sea monsters. On the other hand, there are numerous animals that lost their original classifications, causing a great deal of surprise in researchers who find out, for instance, that the prolific bird *comor*, depicted over a clutch of eggs (Fig. 8)[69], started out as a fish, the carp, noted for its high prolificacy[70]. Similarly, the snake *rutela* was depicted as a lizard with legs and wings, and with bull's horns on

66 Aristoteles, *Historia animalium*, VI. 12 (566b27–567a14): "φώκη"; Aristoteles, *Ṭibāʿ al-ḥayawān*, VI. 566b27: "fūqī"; Aristoteles, *De animalibus*, VI. 566b27 (ed. Vollmann, p. 94): "koki" (Michael Scot identified the final letter as *yā* and ended the word in *i*; he also read *fā* as *qāf* and transcribed it as *k*); Thomas Cantimpratensis, *Liber de natura rerum*, VI. 29: "Koki animal marinum est, ut dicit Aristotiles. In aquis spirare non valet. Dormit prope mare super terram […]. Ibi parit fetus suos […]. Habet autem hoc animal mamillas, unde lactet fetus suos […]. For more detail see Šedinová, "I nomi dei mostri marini", p. 330–331.

67 MS Prague, KMK, L 11, fol. 121va (Fig. 6).

68 MS Prague, NK ČR, X A 4, fol. 122va (Fig. 7).

69 MS Prague, NK ČR, X A 4, fol. 106rb (Fig. 8). See also MS Prague, KMK, L 11, fol. 106vb (the illuminator hinted at the bird's fertility by painting it in its nest), or MS The Hague, Koninklijke Bibliotheek, KA 16, fol. 92va (Iacobus de Maerlant, *Der naturen Bloeme*; the illuminator painted a nest full of birds).

70 For the change of the carp fish into the *comor* bird see H. Šedinová, "Aristotle's carp as Claret's bird comor. Tracing the origin of one medieval term", in *Acta Universitatis Carolinae – Philologica (Graecolatina Pragensia)*, 2 (2016), p. 111–123.

Fig. 6: *Koky*. MS Prague, KMK, L 11, fol. 121va

Fig. 7: *Koki*. MS Prague, NK ČR, X A 4, fol. 122va

its head (Fig. 9)[71], although originally Aristotle wrote about a poisonous spider. Thomas misunderstood his source and wrongly classified the creature in his book *De serpentibus*[72].

71 MS Prague, NK ČR, X A 4, fol. 146vb (Fig. 9). See also e.g. MS Valenciennes, Bibliothèque Municipale, 320, fol. 137rb; MS Prague, NK ČR, XIV A 15, fol. 103vb; MS Vatican, BAV, Pal. Lat. 1066, fol. 132rb; MS The Hague, Koninklijke Bibliotheek, KA 16, fol. 126ra (Iacobus de Maerlant, *Der naturen Bloeme*).

72 Aristoteles, *Historia animalium*, VIII. 4 (594a22): "τὰ φαλάγγια καὶ οἱ ὄφεις"; Aristoteles, *De animalibus*, VII. 594a23 (ed. Vollmann, p. 111): "Serpentes autem et rutela possunt vivere diu sine cibo, et

Fig. 8: *Komor*. MS Prague, NK ČR, X A 4, fol. 106rb

Fig. 9: *Rutela*. MS Prague, NK ČR, X A 4, fol. 146vb

A particularly bizarre mistake gave rise to Thomas's assertions about the sea monster called the *caab*. Its legs resembling the legs of a cow, the animal was said to

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hoc congnoscitur a serpentibus, qui venduntur ab apotecariis."; Thomas Cantimpratensis, *Liber de natura rerum*, VIII. 29: "Rutela serpens est orientis, creatus utiliter ad multa remedia, ut dicit Aristotiles. Hoc genus serpentis capitur ab apothecariis et reponitur in custodiam. In quo notandum est, quod multo tempore sine ulla ciborum alimonia vivit. Sed et omne serpentium genus diu sine cibo vivere potest, sed rutela precipue."; Claretus, *Glossarius*, v. 568: "rutela rutnyk". Instead of adopting Thomas's text, Albertus Magnus, *De animalibus*, XXVI. 25–28, drew from different sources in this case, especially Avicenna, and included the creature called *rutela* in the book *De vermibus*.

Fig. 10: *Caab*. MS Prague, NK ČR, X A 4, fol. 119ra

Fig. 11: *Caab*. MS Prague, NK ČR, XIV A 15, fol. 85ra

be equipped with an extra cartilaginous leg, which was very long and could operate as a hand – the animal used it to pick up plants or put food in its mouth. Researchers have long supposed that the original animal was the seal, or rather the dugong that feeds on seagrasses and seaweed[73]. It was later discovered that Thomas of Cantimpré misinterpreted Michael Scot's translation of Aristotle's account of the elephant[74].

73 See Scanlan, in Albertus Magnus, *Man and the Beasts*, p. 346, n. 25,1–2; Kitchell, Resnick, in Albertus Magnus, *On Animals*, p. 1676, n. 127.

74 See Šedinová, "I nomi dei mostri marini", p. 326–328.

Fig. 12: *Caab*. MS Prague, KMK, L 11, fol. 118va

Thomas failed to understand that the text described the typical features of the elephant – the trunk, the legs and the ankles – and believed Michael's term *cahab*, a transliteration of the Arabic word *kaʿb*, "ankle", to be the name of the animal[75]. The elephant's ankle thus gave rise to a new marine animal depicted as a fish with legs or with one long limb (Fig. 10–11), or as a scaled quadruped with the tail of a fish and with the head of a beast (Fig. 12)[76].

4. Aristotle's Animal Names in Claret's *Glossary*

Thomas's assertions about animals spread from his encyclopedia to the medieval European milieu. Authors who drew information from the work, including the Czech author Claret, added to the distortions of Aristotle's animal names, making their original form even more obscure and greatly hindering their etymological and semantic identification[77].

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75 Aristoteles, *Historia animalium*, II. 1 (497b25): "σφυρά" (pl.); Aristoteles, *Ṭibāʿ al-ḥayawān*, II. 497b25: "kaʿbān"; Aristoteles, *De animalibus*, II. 497b25 (ed. van Oppenraay, p. 52): "cahab"; Thomas Cantimpratensis, *Liber de natura rerum*, VI. 9: "caab"; Claretus, v. 443: "yemnye caab".

76 MS Prague, NK ČR, X A 4, fol. 119ra (Fig. 10), and MS Prague, NK ČR, XIV A 15, fol. 85ra (Fig. 11); MS Prague, KMK, L 11, fol. 118va (Fig. 12).

77 See e.g. Aristoteles, *Historia animalium*, VIII. 2 (591b6): "χάννα"; Aristoteles, *Ṭibāʿ al-ḥayawān*, VII. 591b6: "ḫan(n)ā"; Aristoteles, *De animalibus*, VII. 591b7 (ed. Vollmann, p. 108): "hahanie"; Thomas Cantimpratensis, *Liber de natura rerum*, VI. 3: "ahune" (but see MS Prague, KMK, L 11, fol. 116vb: "achime"); Albertus Magnus, *De animalibus*, XXIV. 11: "hahane"; Bartholomaeus Anglicus, *De proprietatibus rerum naturalium* (Frankfurt, 1601; repr. 1964), XIII. 26: "habatue"; Conradus Megenbergensis, *Das Buch der Natur*, III. C. 2: "achinne"; Petrus Berchorius, *Reductorium morale* (*De rerum proprietatibus*) (Köln a. R., 1631), IX. 44: "fime"; Claretus, *Glossarius*, v. 443: "achimeda".

Many of Claret's terms (fully or largely) conform to the animal names found in Thomas's encyclopedia (e.g. *zybo* > *zybo*; *fetix* > *fetix*; *komor* > *comor*; *fatator* > *fatator*; *rugana* > *rugana*; *abarenon* > *abareno*; *furionz* > *furion*, and more)[78]. Other words underwent various spelling changes (e.g. *agothilez* > *athochilus*; *hamraham* > *amiram*; *karkolaz* > *carbolasia*; *kym* > *kuna*; *kalaoz* > *calazo*; *kylok* > *kiloka*)[79]. Some can be explained as errors of the scribes that copied the manuscript, some reflect the respective author's endeavor to accommodate the word to the Latin system of declinations – the ending *-ez* was frequently replaced with *-a*, *-us* or *-o*, or the final *-z* was simply omitted (*albirez* > *albirus*; *alphoraz* > *alphora*; *astaraz* > *astara*; *agothilez* > *athochilus*; *kalaoz* > *calazo*; *furionz* > *furion*; *glamanez* > *gamena*)[80]. Some terms were distorted to such an extent that the authors of the *Latinitatis medii aevi lexicon Bohemorum* were only able to trace Thomas's encyclopedia as Claret's source after examination of the variant handwritings in the copies of Thomas's encyclopedia housed in Prague libraries[81].

Some of the changes are related to the form that Claret selected for composing his *Glossary*. The dictionary is written in the Leonine hexameter with internal rhyme – both the quality and quantity of the syllables is therefore adapted for the purposes of the metric scheme, and the endings of words (especially the Czech equivalents) are often governed by the need of a rhyme. For the purposes of the meter, the author regularly altered the declination of Latin terms, but occasionally also extended a term by one or even two syllables. Thomas's term *focha* was stretched to Claret's *focale* in the verse: "Nereides morzap, focale krnap, olchus vtistrzap" (v. 447)[82]. The name *gracocenderon*, which originated from the Greek (τὸ τῶν) κορακοειδῶν (ὀρνίθων γένος), was lengthened by one syllable in the verse: "Et gracocenderius czistel, pozpiewle calendrus" (v. 280)[83]. And the word *karkolaz*, itself a product of the turbulent modifications which the original Greek word κόκκυξ incurred during its long passage through the Arabic and Latin translations[84], was

78 Thomas Cantimpratensis, *Liber de natura rerum*, IV. 111: "zybo"; V. 48: "fetix"; V. 72: "komor"; V. 47: "fatator"; VII. 6: "rugana"; VII. 9: "abarenon"; IV. 43: "furionz"; Claretus, *Glossarius*, v. 460: "zybo"; 263: "fetix"; 296: "comor"; 298: "fatator"; 386: "rugana"; 412: "abareno"; 436: "furion".

79 Thomas Cantimpratensis, *Liber de natura rerum*, V. 5: "agothilez"; V. 11: "hamraham"; V. 71: "karkolaz"; V. 70: "kym"; VII. 42: "kalaoz"; VII. 43: "kylok"; Claretus, *Glossarius*, v. 251: "athochilus"; 294: "amiram"; 290: "carbolasia"; 273: "kuna"; 421: "calazo"; "kiloka".

80 Thomas Cantimpratensis, *Liber de natura rerum*, VII. 6: "albirez"; VII. 3: "alphoraz"; VII. 4: "astaraz"; V. 5: "agothilez"; VII. 42: "kalaoz"; IV. 43: "furionz"; VI. 26: "glamanez"; Claretus, *Glossarius*, v. 386: "albirus"; 402: "alphora"; 403: "astara"; 251: "athochilus"; 421: "calazo"; 436: "furion"; 446: "gamena".

81 See n. 85.

82 See n. 64.

83 For more detail see H. Šedinová, "From the Dictionary of Medieval Latin in Czech Lands: gracocenderius", in *Listy filologické*, 140 (2017), p. 455–470.

84 Aristoteles, *Historia animalium*, VI. 7 (563b14–564a3), and IX. 29 (618a8–13): "κόκκυξ"; Aristoteles, *Ṭibāʿ al-ḥayawān*, VI. 593b14–30: "kūḫuks", and VIII. 618a8–16: "qūquks"; Aristoteles, *De animalibus*, VI. 563b14–564a2 (ed. Vollmann, p. 90–91): "kokochoz", "kakochoz", "kokokoz", and VIII. 618a9–30 (ed. Vollmann, p. 140–141): "kokoz", "kakokoz", "kokonoz", "kokukez", "kokogoz", and others; Thomas Cantimpratensis, *Liber de natura rerum*, V. 71: "karkolaz"; Claretus, v. 290: "carbolasia dozlosskrw". For more details see H. Šedinová, "Kukačka a kukaččí mládě v antických a středověkých odborných textech [The Cuckoo and Cuckoo Young in Ancient and Medieval Treatises]", in *Historické štúdie*, 48 (2014), p. 137–153.

further deformed by some copyists of Thomas's encyclopedia into *carbola* and *carbolam*[85], which in turn became *carbolasia* in Claret's *Glossary*, having been extended by two syllables in the verse: "Egichus oslokr[i]w, carbolasiaque dozlosskrw" (v. 290).

Claret excerpted from Thomas's encyclopedia all the obscure Latin animal names created by the translators of Aristotle's works. Although he did not describe the animals, he preserved Thomas's text in a different form – by inventing expressive Czech equivalents for the Latin terms. His Czech counterparts to the Latin animal names remain the topic of vigorous discussion, as their etymological and semantic analysis is immensely intricate, and most of the terms have not been sufficiently explained to this day. The names that are easy to understand, however, demonstrate that Claret often formed the Czech terms based on the typical features of the animals, as described by Thomas in his encyclopedia[86]. For instance, the name *beznoha* (cf. Czech *bez*, "without", and *noha*, "leg"), the Czech counterpart of the Latin word *dariaca* (v. 258), was clearly inspired by Thomas's account of a bird called *dariata* that supposedly has no legs[87]. Similarly, the name *czistel* (cf. Czech *čistý*, "pure", "chaste"), the Czech counterpart of the Latin word *gracocenderius* (v. 280), denoted the chaste bird called *gracocenderon* that, according to Thomas, copulates only once a year and with the sole intent of producing offspring[88]. Claret's descriptions are similar to the illustrations in the illuminated copies of Thomas's encyclopedia, in that they represent a concise version of Thomas's explanation. While the illuminations characterize the text in visual symbols, Claret's Czech equivalents summarize it in a single word. Readers of Claret's *Glossary* could not use the equivalents to identify a specific animal, as weak or unused legs, or sexual abstention, cannot serve as the singular identifying feature of a specific species.

5. Conclusion

Later authors were largely unable to embrace the entire corpus of Aristotle's zoological knowledge. Already in Antiquity, and to a greater extent in the Middle Ages, authors abridged Aristotle's works, and reduced the descriptions of individual animals. Much of Aristotle's information was lost over the following centuries, and was

85 See MS Prague, NK ČR, X A 4, fol. 106rb: "carbolam" (*carcolam* in the margin); MS Prague, KMK, L 11, fol. 106va: "carbola". Although these manuscripts are dated later than the creation of Claret's work, the variant *carbola(m)* was most probably also used in older copies.

86 On the other hand, in some cases he created the Czech equivalent as a borrowing from the Latin name, see e.g. v. 568: "rutela rutnyk", or as a translation of the Latin name, see e.g. v. 386: "bielan albirus" (cf. Czech *bielý*, "white"); the name *albirus*, however, is not related to the Latin adj. *albus*, "bílý".

87 Thomas Cantimpratensis, *Liber de natura rerum*, V. 42: "Dariata, ut dicit Aristotiles, avis orientalis est. Pedibus caret, rostro et alis in rependo utens […]"; Claretus, *Glossarius*, v. 258: "dariaca beznoha"; for more details see H. Šedinová, "Per errorem ad novum terminum. Alcuni termini di animali creati per incomprensione delle fonti", in *Archivum Latinitatis Medii Aevi (Bulletin du Cange)*, 71 (2013), p. 223–235 (esp. p. 232–34).

88 See n. 83.

later reconstructed by modern zoologists based on their own observations. Moreover, when compiling their works, many of Aristotle's followers focused solely on the exceptional and curious features of the appearance and the behavior of the animals or mythical or exotic creatures. Given Thomas's fascination with everything unusual and extraordinary, it was easy for medieval readers, especially those of his encyclopedia, to create an animal world that was very remote from the original scientific nature of Aristotle's work.

Medieval authors also modified the names of the animals, sometimes slightly, sometimes substantially. Pliny the Elder replaced Greek names with equivalent Latin terms or used Latin borrowings from Greek or other languages. The Middle Ages brought considerably more changes to zoological terminology, due to the distortions incurred during the translation of Aristotle's works into Arabic and Latin. The translator into Arabic translated some of the Greek animal names, and transcribed the rest. While Roman authors were able to transcribe Greek words into Classical Latin quite accurately, the different phonetic systems of Indo-European and Semitic languages do not allow for faithful transcriptions. Michael Scot was left to his own resources when vocalizing non-Arabic words in the Arabic manuscript. His ignorance of Greek prevented him from checking the transcribed words against their Greek originals. In addition, when the Arabic scribe left out the dots that differentiate between Arabic consonants with the same basic sign, Scot had to choose one of the relevant consonants at his own discretion. It is no wonder that the ultimate forms of the terms that underwent double transcription were often very remote from the spelling of the original Greek words.

Thomas of Cantimpré, who used Scot's translation as one of his major sources, could speak neither Greek nor Arabic, which made it impossible for him to identify the animals denoted by the distorted names, although they were mostly easily identifiable as common species in Aristotle's texts and the works of Roman authors. He conjectured that the animals with strange names were exotic creatures, or even curious and dangerous monsters living in eastern countries, the Mediterranean Sea, or the Atlantic Ocean. Due to the damaged parts of the copy he used, or due to miscomprehension of Scot's wording, he equipped some of the animals with new features. Some animals received a modified or brand new name, and some turned into completely different creatures that could not be identified either by medieval authors or by modern researchers.

Lexicographers struggle to disclose the origin and history of each name in the unique group of Claret's animal names, and to separate mistakes and misapprehensions from correctly mediated information. To do so, they need to trace each of the animals from Claret back to Thomas of Cantimpré, then to the Latin and Arabic translations of Aristotle, and finally, return to their original descriptions in Aristotle's *Historia animalium*.

KRYSTYNA KRAUZE-BŁACHOWICZ

A Prague Thread in the History of Speculative Grammar in Late Fourteenth and Fifteenth Century Cracow?

Cracow University was founded in 1364 by King Casimir the Great (1333-1370)[1]. The dynamic development that truly earned it the sobriquet of "pearl of powerful learning", as it was called in its Founding document[2], really started in 1400, when the university was renovated following the establishment of the Faculty of Theology two years earlier[3]. It was a natural phenomenon that previously (as well as later) many students from Poland traveled to Prague, where they joined the large Polish university nation at the University of Prague to obtain their degrees[4]. A few graduates from the short-lived Casimirian university in Cracow were among them, as in the Prague *Liber decanorum* we find a small group of men called *baccalaureati Cracovienses* registered between 1368–1373 at the University of Prague[5]. Consequently, in the early history of the Cracow University, masters educated at the University of Prague were predominant among the faculty, who also included former Prague teachers of Polish origin[6]. The preserved list of the Cracow Teachers' Corporation of 1404 contains

1 Information concerning the foundation of this first *studium generale* in Cracow, the so-called Casimirian university, and the probable reasons for its decline after the early 1370's can be found in P. W. Knoll, *"A Pearl of Powerful Learning": The University of Cracow in the Fifteenth Century*, Leiden / Boston, Brill, 2016, p. 11–22.

2 Knoll, *"A Pearl of Powerful Learning"*, p. 10.

3 The second founder of the university was King Władysław Jagiełło (1386–1434). For the details of his foundation and relevant bibliographical information, see Knoll, *"A Pearl of Powerful Learning"*, p. 10, 22–41.

4 K. Ożóg, *Uczeni w Monarchii Jadwigi Andegaweńskiej i Władysława Jagiełły (1384–1434)*, Kraków, Polska Akademia Umiejętności, 2004, p. 31.

5 Namely: Theodoric of Lucca, Nicolaus Osterhusen, John of Elbing. See *Liber decanorum facultatis philosophicae Universitatis Pragensis ab anno Christi 1367 usque ad annum 1585*, pars I, eds. A. Dittrich, A. Spirk, Pragae, Typis Joan. Nep. Gerzabek, 1830, p. 138, 143, 155; cf. W. Uruszczak, "Powstanie Uniwersytetu w Krakowie w 1364 roku", in *Czasopismo Prawno-Historyczne*, 66–1 (2014), p. 13–40, in particular p. 33; J. Sondel, "Prawo rzymskie w planach uniwersyteckich Kazimierza Wielkiego", in J. Sondel, *Ze studiów nad prawem rzymskim w Polsce Piastowskiej*, Warszawa / Kraków, Państwowe Wydawnictwo Naukowe, 1978, p. 90–91.

6 Knoll, *"A Pearl of Powerful Learning"*, p. 100.

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thirty-one names – twenty-five of those people are said to have studied at the University of Prague; in fact, there were three more[7]. Later, in the early fifteenth century, this number increased further: there are thirty names of Prague masters and doctors in the whole faculty out of a total of forty-one on the list of 1408[8]. In sum, in the first decade of the fifteenth century, around forty professors educated in Prague taught and carried out research at Cracow University. František Šmahel writes that after the second Cracow foundation in 1400, and especially after May 1409, when masters and students from the three non-Bohemian nations at the university decided to leave Prague due to the Kuttenberg Decree, Prague became a reservoir not only of professors but also of students for Cracow[9]. The scholars coming from Prague transferred intellectual achievements and brought texts, commentaries, doctrinal controversies, and philosophical and theological conceptions with them[10]. Thus, although the Polish *studium* did not follow the University of Prague as a model for its institutional development in some important respects[11], we may justly maintain that the University of Prague was the "mother of Cracow University".

In this paper, I will concentrate on the *translatio studii* in the narrow field of speculative grammar and especially on that part which, in one way or another, is connected or refers to the authority of the modistic tradition[12]. This tradition was

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7 Ożóg, *Uczeni w Monarchii Jadwigi Andegaweńskiej*, p. 33.

8 Ożóg, *Uczeni w Monarchii Jadwigi Andegaweńskiej*, p. 33. According to M. Markowski another forty teachers gradually came to Cracow due to the changes that began in 1409 at the University of Prague. See M. Markowski, *Pierwowzory uniwersytetów*, Olecko, Wydawnictwo Wszechnicy Mazurskiej, 2003, p. 233–234.

9 F. Šmahel, *Alma Mater Pragensis. Studie* k *počátkům Univerzity Karlovy* [Alma Mater Pragensis. Studies on the Beginnings of Charles University], Praha, Univerzita Karlova v Praze – Nakladatelství Karolinum, 2016, p. 34. For detailed information about the Kuttenberg Decree and the secession of the masters, see F. Šmahel, "The Kuttenberg Decree and the Withdrawal of the German Students from Prague in 1409: A Discussion", in F. Šmahel, *Die Prager Universität im Mittelalter / The Charles University in the Middle Ages. Gesammelte Aufsätze / Selected Studies*, Leiden / Boston, Brill, 2007, p. 159–171.

10 Ożóg, *Uczeni w Monarchii Jadwigi Andegaweńskiej*, p. 33.

11 For example, the members of Cracow University were not divided into nations, and the Faculty of Law, in contrast to Prague, was not an independent institution. See K. Ożóg, "Utrum universitas Pragensis sit mater Universitatis Cracoviensis? Czyli o wzorcach korporacyjnych krakowskiej wszechnicy w XV wieku", in W. Iwańczak, J. Smołucha (eds.), *Wspólnoty małe i duże w społeczeństwach Czech i Polski w* średniowieczu *i czasach nowożytnych*, Kraków, Księgarnia Akademicka, 2010, p. 59–81; cf. Knoll, *"A Pearl of Powerful Learning"*, p. 79, 100; cf. M. Markowski, *Pierwowzory uniwersytetów*, p. 233–286; cf. Šmahel, *Alma Mater Pragensis*, p. 34.

12 In her works, Irène Rosier-Catach has shown the equivocal character of the term *modistae*. The criteria, which she established in her "modulary" approach allowed her to precisely pinpoint a group of the thirteenth and fourteenth century authors identified as *modistae* and show common traits and differences between their texts and other groups of texts from that period, such as those by intentionalists and conceptualists that show other approaches to grammar. Cf. I. Rosier-Catach, "Modisme, pré-modisme, proto-modisme: pour une définition modulaire", in S. Ebbesen, R. Friedman (eds.), *Medieval Analyses in Language and Cognition*, Copenhagen, Royal Danish Academy of Sciences and Letters, 1999, p. 45–81; I. Rosier-Catach, "Grammar", in R. Pasnau (ed.), *Cambridge History of Later Medieval Philosophy*, Cambridge, Cambridge University Press, 2010, p. 197–207. Moreover, Anne Grondeux points to later, mutually inspiring relations between didactic and speculative grammar, including the modistic trend. Cf. A. Grondeux, *Le Graecismus d'Évrard de Béthune à travers ses gloses. Entre grammaire positive*

very popular in Prague in the late fourteenth century and at the beginning of the fifteenth century. The popularity of modistic interests is attested by the multiplicity of manuscripts of Thomas of Erfurt's *Novi modi significandi* (with a few fourteenth century copies among them), its versified abbreviations, copies of *Flores* by Ludolphus de Luco (or Luchowe, written in the early fourteenth century), commentaries on Martin of Dacia's *Modi significandi,* and other grammatical commentaries of this sort that are still preserved in Prague. Similar interests are attested in Cracow and at other new universities in Central and Northern Europe[13]. This study concerns several commonalities that are characteristic specifically of Prague and Cracow. Thus, the first subchapter is dedicated to an influential Cracow scholar educated in Prague, and to the grammatical manuscript that most probably went with him to Cracow from Prague. The second subchapter concerns the Cracow-Prague tradition of the short didactic poem called *Massa grammaticae,* and the Prague commentary on it. The last part deals with the content of the aforementioned Prague commentary and raises the question of the thread linking it to the Cracow grammatical tradition.

1. Bartholomew of Jasło and the French Manuscript from Prague

"In the first year of instruction at the renovated Cracow University, Bishop Peter Wysz of Cracow appointed a committee of six professors, all educated at Prague, to prepare statutes for it[14]." One of them was Bartholomew of Jasło, who had been involved in the process of the renovation of Cracow University even earlier, in 1390–1393, an attempt that failed. He studied at the Faculty of Arts of the University of Prague, and obtained his bachelor's degree there in 1382; later, in 1384, he obtained his Master of Arts degree. From 1385, Bartholomew was a professor

et grammaire spéculative du XIIIe au XVe siècle, Turnhout, Brepols, 2000; A. Grondeux, "La *grammatica positiva* dans le Bas Moyen-Age", in S. Auroux, K. Koerner, H. J. Niederehe, K. Versteegh (eds.), *History of the Language Sciences / Geschichte der Sprachwissenschaften / Histoire des sciences du langage*, Berlin / New York, De Gruyter Mouton, 2000, p. 598–610, p. 607–608; cf. also Rosier-Catach, "Grammar", p. 203. My cautious formulation concerning the scope of interest of the grammars that are the subject of my paper results from the fact that according to the criteria set by I. Rosier-Catach only the anonymous commentary on *Priscianus Minor* may be accepted as a "modistic" text *par excellence* (see note 17 below). *Massa grammaticae*, which I discuss later, was included in this noble company only because of its alleged relationship to Thomas of Erfurt. The next two texts that are subjects of my research are fifteenth century commentaries containing a number of the aforementioned mixed influences, and aspiring to the group of "late modistic grammars" proposed by I. Rosier-Catach. Cf. Rosier-Catach, "Grammar", p. 214.

13 J. Pinborg, *Die Entwicklung der Sprachteorie im Mittelalter*, Münster / Kopenhagen, Aschendorff, 1967, p. 199, 331, 335; R. Gansiniec, *Metrificale Marka z Opatowca i traktaty gramatyczne XIV i XV wieku*, Wrocław, Ossolineum, 1960, p. 142–148; G. L. Bursill-Hall, *A Census of Medieval Latin Grammatical Manuscripts*, Stuttgart-Bad Canstatt, Frommann-Holzboog, 1981, p. 97–101, 211–222.

14 Knoll, *"A Pearl of Powerful Learning"*, p. 80. Cf. Z. Kozłowska-Budkowa, "Odnowienie Jagiellońskie Uniwersytetu Krakowskiego 1390–1414", in K. Lepszy (ed.), *Dzieje Uniwersytetu Jagiellońskiego w latach 1364–1764*, vol. 1, Kraków, Uniwersytet Jagielloński, 1964, p. 37–89, p. 56, n.71.

at the Prague Faculty of Arts and, at the same time, studied law in the same city. Around 1390 he returned to Poland and committed himself to the task of reviving the activity of the University of Cracow. From January 1394, he was rector of the collegiate school in Sandomierz. In 1399 he went back to Prague, where he studied theology for a year or two and obtained the title of *baccalarius sacrae paginae*. On his return to Cracow he participated in the bishop's commission while simultaneously continuing his theological studies. His later lectures on the *Sentences* of Peter Lombard were partly based on a commentary of Menso of Beckhusen from Prague[15]. We can thus see Bartholomew as an example of a scholar shuttling between Cracow and Prague.

One of the most interesting Cracow grammatical manuscripts is connected with the name of Bartholomew – this Prague liaison of ours. It is the anonymous modistic *Quaestiones super Priscianum minorem* preserved in MS Cracow, BJ, 649 (fols 231ra–252vb)[16]. The text was written on parchment, most probably in Paris towards the end of the thirteenth century or at the very beginning of the fourteenth century. These modistic[17] *Quaestiones* share common features with Radul-

15 K. Wójcik, "Bartłomiej z Jasła", in A. Maryniarczyk (ed.), *Powszechna Encyklopedia Filozofii*, t. 1, Lublin, Polskie Towarzystwo Tomasza z Akwinu, 2000, p. 493–494; the same entry in English: K. Wójcik, "Bartholomew of Jasło", in A. Maryniarczyk (ed.), *Powszechna Encyklopedia Filozofii*, accessible from: https://www.ptta.pl/pef/haslaen/b/barthojas.pdf. For more information about Bartholomew of Jasło see M. Kowalczyk, "Odnowienie Uniwersytetu Krakowskiego w świetle mów Bartłomieja z Jasła", in *Małopolskie Studia Historyczne*, 6–3/4 (1964), p. 23–42; M. Kowalczyk, "Bartłomiej z Jasła", in *Materiały i Studia Zakladu Historii Filozofii Starozytnej i* Średniowiecznej, *Seria A*: Materiały do Historii Filozofii średniowiecznej w Polsce, 5 (1965), p. 3–23; J. Tříška, *Životopisný slovník předhusitské pražské univerzity 1348–1409* [Biographical Lexicon of the Pre-Hussite Prague University 1348–1409], Praha, Univerzita Karlova, 1981, p. 40. For information about Menso of Beckhusen see Tříška, *Životopisný slovník předhusitské pražské univerzity 1348–1409*, p. 371; W. Zega, *Filozofia Boga w* Quaestiones Sententiarum *Mikołaja Bicepsa*, Bydgoszcz / Warszawa, IFiS PAN, 2002, p. 12, 59–61, 151–152.

16 Our text contains only questions on the *Priscian minor*, and was quoted under this title in Radulphus Brito, *Quaestiones super Priscianum minorem. Grammatica speculativa*, eds. J. Pinborg, H. W. Enders, Stuttgart-Bad Canstatt, Frommann-Holzboog, 1980, p. 9 and in J. Pinborg, *Die Entwicklung*, p. 322. Cf. C. Marmo, *Semiotica e linguaggio nella scolastica: Parigi, Bologna, Erfurt 1270–1330. La semiotica dei Modisti*, Roma, Istituto storico italiano per il Medio Evo, 1994, p. 381. The Jagiellonian Library Catalog lists it, somewhat inadequately, under the more general title *Quaestiones super Institutionibus grammaticis Prisciani*. Cf. *Catalogus codicum manuscriptorum medii aevi Latinorum qui in Bibliotheca Jagellonica Cracoviae asservantur*, vol. IV, composuerunt M. Kowalczyk, A. Kozłowska, M. Markowski et. al., Wrocław / Warszawa / Kraków / Gdańsk / Łódź, Ossolineum, 1988, p. 400–403. In this paper, I refer to the text as the *Quaestiones super Priscianum minorem*, following the established tradition. In order to facilitate its identification, the notes give the title from the Jagellonian Library catalog and add the traditional title in square brackets.

17 This 47-questions grammatical text contains thirteen introductory questions preceded by a "Prooemium" of a general philosophical character. Five of the introductory questions concern the theoretical status of grammar, with a special focus on the concept of *modus significandi*. The remaining eight questions discuss the psychological and ontological status of the modes of signification and of construction. Cf. Anonymus, *Quaestiones super Institutionibus grammaticis Prisciani* [=Quaestiones super Priscianum minorem], "Prooemium", q. 3 "Utrum sermo significativus sit subiectum in grammatica", q. 7 "Utrum constructio sit in constructibilibus sicut in subiecto", q. 12 "In quo sint modi significandi ut in subiecto", ed. K. Krauze-Błachowicz, in K. Krauze-Błachowicz, *Jan z Głogowa i tradycja*

phus Brito's *Quaestiones super Priscianum minorem*[18]. Two questions from the anonymous work show very close resemblance to two analogical questions by Radulphus Brito[19]. Both works take Martin of Dacia's *Modi significandi* textbook as a standard reference[20]. The manuscript must once have been in the hands of Bartholomew of Jasło; this is attested by his own note about the accentuation of words at the bottom margin of the last page (fol. 252v). The manuscript became a part of the actual MS Cracow, BJ, 649 in 1400 or in 1470, when the latter was bound or rebound. Most probably, it had been brought to Cracow from Prague[21]. Unfortunately, with the exception of the note in the margin, we do not have any other evidence to assure us that the manuscript was brought to Cracow by Bartholomew in person. Thanks to the list of the *incipits* in Bursill-Hall's *Census grammaticorum* I was able to localize a fragment of a copy of the same text originating from almost the same period, i.e. the first half of the fourteenth century[22]. The latter piece – containing an introduction – is preserved in Prague among the manuscripts of the library of the Metropolitan Chapter of St Vitus, in MS Prague, KMK, M 74, fols 78r–v (cat. 1320). In the Patera-Podlaha catalog it appears under the misleading heading *De bono,* and this is probably why it went unnoticed in the modern scholarly literature devoted to the *modi significandi* theory for a long time[23]. Thanks to the invaluable list of *incipits* by Bursill-Hall, it was also possible to trace another cognate of the Prague and Cracow manuscripts: The same *Quaestiones* are preserved in MS Stuttgart, Württembergische Landesbibliothek,

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gramatyki spekulatywnej, Warszawa, Wydawnictwo Naukowe Semper, 2008, p. 345–370. The content of the introductory part of the text, which is characteristic of modistic writings, may encourage one to accept the anonymous *Quaestiones* as a "modistic" grammar, since it satisfies the criteria of the "modulary" approach (especially the criteria of "modules" 1 and 3) presented in Rosier-Catach, "Modisme, pré-modisme, proto-modisme: pour une définition modulaire", p. 48–51, 60–63.

18 Radulphus Brito, *Quaestiones super Priscianum minorem. Grammatica speculativa*, p. 120; cf. Marmo, *Semiotica e linguaggio nella scolastica: Parigi, Bologna, Erfurt 1270–1330*, p. 381–382.

19 Cf. J. Pinborg, "Leben und Werke des Radulphus Brito", in Radulphus Brito, *Quaestiones super Priscianum minorem. Grammatica speculativa*, p. 25. Their matching questions are the following: Anonymus, *Quaestiones super Institutionibus grammaticis Prisciani* [=*Quaestiones super Priscianum minorem*], q. 35 "Utrum participium possit supponere verbo" (MS Cracow, BJ, 649, fol. 248ra-va), q. 37 "Utrum vocativus possit construi cum verbo in ratione suppositi" (MS Cracow, BJ, 649, fols 249ra-250ra) and Radulphus Brito, *Quaestiones super Priscianum minorem. Grammatica speculativa*, qq. II. 14 and II. 4, p. 408–415, 358–375, respectively.

20 J. Pinborg, "Leben und Werke des Radulphus Brito", in Radulphus Brito, *Quaestiones super Priscianum minorem. Grammatica speculativa*, p. 25–26; cf. Anonymus, *Quaestiones super Institutionibus grammaticis Prisciani* [=*Quaestiones in Priscianum minorem*], q. 12 "In quo sint modi significandi ut in subiecto", ed. K. Krauze-Błachowicz, in Krauze-Błachowicz, *Jan z Głogowa i tradycja gramatyki spekulatywnej*, p. 365–370, p. 368.

21 *Catalogus codicum manuscriptorum medii aevi Latinorum qui in Bibliotheca Jagellonica Cracoviae asservantur*, vol. IV, p. 400–403.

22 Bursill-Hall, *A Census of Medieval Latin Grammatical Manuscripts*, p. 335. Regrettably there is no mention of this manuscript or any of its cognates in the FAMA database (http://fama.irht.cnrs.fr/).

23 A. Patera, A. Podlaha, *Soupis rukopisů Knihovny Metropolitní kapitoly pražské* [Catalog of Manuscripts of the Prague Metropolitan Chapter Library], vol. 1–2, Praha, Česká akademie císaře Františka Josefa pro vědy, slovesnost a umění, 1910–1922, vol. 2, p. 242–243.

Cod. poet. et phil. 40 67, fols 1r–125v[24]. In this case, it is a much later copy, written in 1446 in the Bavarian or Austrian milieu. In the Stuttgart library catalog of 1981, the introduction to the *Quaestiones* was mistakenly ascribed to Albertus Swebelinus[25].

2. *Massa grammaticae* and its Polish and Czech tradition

Another Cracow manuscript which may be studied with respect to intellectual liaisons between Cracow and Prague is that containing the *Massa grammaticae*, a versified lecture about Latin grammatical or, more precisely, syntactical rules. This short poem purports to summarize the second part of Thomas of Erfurt's *Novi modi significandi*, which deals with syntax – *dyasinthetica*. So far, only three copies of the *Massa* have been found. One of them – the oldest – is preserved in MS Cracow, BJ, 2460, fols 175v–177v, in a quire dated to the 1370s[26]. The only copies of the poem outside Cracow are preserved in Prague, and were copied in the Czech milieu in the middle of the fifteenth century. They can be found in the Prague Metropolitan Chapter Library. Both of the Czech copies of the *Massa* are equipped with long modistic commentaries. In each case the poem is intertwined with the text of a commentary in such a way that the verses form lemmas for the commentary. One of the manuscripts is contained in MS Prague, KMK, M 84, fols 67r–89r (cat. 1441)[27]. The second is preserved in MS Prague, KMK, M 137, fols 73r–99v (cat. 1498)[28]. The text of the Cracow copy of the poem was edited in 1960, together with other fourteenth and fifteenth century grammatical treatises, in Ryszard Gansiniec's book *Metrificale Marka z Opatowca i traktaty gramatyczne XIV i XV wieku*[29]. This book also con-

24 W. Irtenkauf, I. Krekler, I. Dumke, *Die Handschriften der Württembergischen Landesbibliothek Stuttgart. Reihe 1, Bd. 2: Codices poetici et philologici*, Wiesbaden, Otto Harrassowitz, 1981, p. 132–133.

25 Irtenkauf, Krekler, Dumke, *Die Handschriften der Württembergischen Landesbibliothek Stuttgart. Reihe 1, Bd. 2: Codices poetici et philologici*, p. 132. This introduction ("Prooemium"), which precedes the other introductory questions, seems to be a type of philosophical prologue that could be used not only in lectures of grammar but also in lectures in other disciplines of learning in the thirteenth century. Information about this type of prologue and examples of such prologues can be found in Grondeux, *Le Graecismus d'Évrard de Béthune à travers ses gloses*, Turnhout, Brepols, 2000, p. 123–190, 459–527; cf. C. Lafleur, *Quatre introductions à la philosophie au XIIIe siècle. Textes critiques et étude historique*, Montréal / Paris, Institut d'études médiévales / Vrin, 1988; C. Lafleur, J. Carrier, "L'enseignement philosophique à la Faculté des Arts de l'Université de Paris en la première moitié du XIIIe siècle dans le miroir des textes didascaliques", in *Laval théologique et philosophique*, 60–3 (2004), p. 409–448. For information concerning the edition of the "Prooemium" to the anonymous *Quaestiones in Priscianum minorem* see above, n. 17. For the discussion of its content see K. Krauze-Błachowicz, "Pleasures of Grammar", in *Przegląd Tomistyczny*, 19 (2013), p. 131–138, p. 131–134.

26 M. Zwiercan, "Opis rękopisu BJ 2460", in *The Collection of Unprinted Texts Owned by the Department of the History of Ancient and Medieval Philosophy*, Polish Academy of Sciences, text No. 524.

27 Patera, Podlaha, *Soupis rukopisů Knihovny Metropolitní kapitoly pražské*, vol. 2, p. 316–318.

28 Patera, Podlaha, *Soupis rukopisů Knihovny Metropolitní kapitoly pražské*, vol. 2, p. 352.

29 Anonymus, *Liber Masse gramaticae*, ed. R. Gansiniec, in R. Gansiniec, *Metrificale Marka z Opatowca i traktaty gramatyczne XIV i XV wieku*, p. 154–159.

tains an edition of the commentary on the *Massa* contained in MS Prague, KMK, M 84[30]. The whole book was prepared posthumously from materials left by this eminent scholar. Regrettably, the circumstances of publication had an adverse influence on both editions. None of the Prague versions of the poem is included in the edition of the *Massa*. Moreover, MS Prague, KMK, M 137 seems to have been unknown to him.

According to Gansiniec, the *Massa* was composed in Cracow for Cracovian students. His argument is based on the fact that the anonymous author suggested that readers translate the Latin construction into a Polish one, and compare it with German usage for better understanding. The part of the poem where the Polish language is mentioned concerns the government, or rection, of the dative case in cases of constructions like "I tell you", "I write to you" ("dico tibi", "scribo tibi"). The author of the poem states that the Polish and German languages share the same government with Latin, so the student should refer to those languages to better understand the Latin syntax.

Plurima sunt ternum nunc verba regencia casum v. 68
Verba *fari* signant tibi quem vel *significare*
Dant hunc *significo* et *dico denoto scribo*.
Ac plenum pensa verborum significata
Polonice fando, post hec communia dando v.72
In *plu* **Germane** que si donaveris in *den*.
Tunc verbum tale ternum dat nominis omen.
Hinc iuvat excipias quod quarto iungere debes:
For hoc non certe perlibet hoc reor esse[31]. v. 76

Gansiniec claims that the text was originally written in Cracow for Cracovian students, because students in Cracow at the time (i.e. at the end of the fourteenth century) spoke both Polish and German. He discusses but rejects the alternative possibility that the text could have been composed in Prague specifically for students belonging to the Polish *natio*. In his view, the Polish *natio* consisted mainly of Silesian students, whose native language was German, and, besides, what would be the point in composing a text specially dedicated to one nation? Gansiniec surmises that the author must have taught at King Casimir's recently founded University, and was probably a teacher of Silesian origin. If we take Gansiniec's opinion for granted, it would be very tempting to conclude that the *Massa* was imported to Prague from Cracow.

Unfortunately, the assumption of the Polish origin of the poem based on the occurrence of the word "Polonice" seems to be biased, as Gansiniec is silent about the fact that the Czech copies (or at least the copy he knows about) do not contain the word "Polonice"; they use the word "Theutonicum" instead. In these circumstances, we may only state that verse 72 of the poem is not sufficient evidence of its

30 Anonymus, *Komentarz do Massa gramatice* [Commentary on Massa gramatice], ed. R. Gansiniec, in Gansiniec, *Metrificale Marka z Opatowca i traktaty gramatyczne XIV i XV wieku*, p. 160–206.

31 Anonymus, *Liber Masse gramatice*, ed. Gansiniec, p. 157.

Cracovian origin. It might have been adapted to the needs of the Polish-speaking students in Cracow. The hypothesis that the *Massa grammaticae* was, perhaps, produced earlier in the fourteenth century in some German milieu seems no less plausible than the Prague/Cracow alternative presented by Gansiniec. It is thus better to content oneself with a much weaker statement than his: Whatever the origin of the poem, Cracovian and Prague teachers must have shared a common interest in the *Massa grammaticae*, which so far has not been proven to exist anywhere else.

MS Prague, KMK, M 84 (where the *Massa* commentary edited by Ryszard Gansiniec is preserved) is a grammatical codex wholly or mostly written in the middle of the fifteenth century in the school of Litoměřice[32]. Most of the texts in MS Prague, KMK, M 84 were copied in Litoměřice by Wenceslas of Rokycany in 1452 and 1453. A couple of colophons in the codex indicate that the text was copied ("regrossatus", "regrossatum") by him: One contains the statement "per me Venceslaum de Rokyczana regrossatum a magistro Matthia etc."[33]. The colophon of the manuscript containing the *Massa* and the commentary on it says that the text was "regrossatus a reverendo magistro Matthia de Czastolowicz" (Gansiniec mistakenly reads "de Castol Olbice") in September 1453[34]. The codex also contains another grammatical text, *Brevilogus de grammatica metricus cum commentario*, whose colophon says: "Et sic est finis huius opusculi; regrossatum a reverendo magistro Matthia de Czastollowicz; anno illo electus in decanatus (!) nove civitatis(?) Luthomericensis, et hoc in octava sancti Jeronimi etc. anno domini 1453[35]." All of these texts seem to be written by the hand of Wenceslas. When the copyist is directly named, the expression "per Wenceslaum" or "per manus Wenceslai" is used. When Matthias of Častolovice is mentioned, the expressions "a reverendo magistro Matthia de Czastolowicz" or "a magistro Matthia" are used. It is thus most likely that in all these cases we are dealing with commentaries copied by Wenceslas which, however, are attributed in some way or another to Matthias.

Since the standard grammatical examples in the *Massa* commentary are "Petrus per se vadit Pragam", "studeo Bohemie", "moror Prage", and "studeas Rome vel Prage", it seems that the text was intended for use in teaching in Prague. We know of a certain Prague master named Matthias of Častolovice, mentioned in the *Liber decanorum,* who passed the bachelor's exam in September 1442 and obtained his grade on 20 October 1442. On 30 February 1448 he passed his master's exam, and on 12 March 1448 obtained his grade with Mařík of Benešov being his supervisor[36].

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32 Patera, Podlaha, *Soupis rukopisů Knihovny Metropolitní kapitoly pražské*, vol. 2, p. 316–318.

33 Anonymus, *Grammatica versificata cum commentario*, in MS Prague, KMK, M 84, fol. 66v, cf. Patera, Podlaha, *Soupis rukopisů Knihovny Metropolitní kapitoly pražské*, vol. 2, p. 317.

34 Anonymus, *Massa grammaticae cum commentario*, in MS Prague, KMK, M 84, fol. 87r. See Patera, Podlaha, *Soupis rukopisů Knihovny Metropolitní kapitoly pražské*, vol. 2, p. 317: "Et sic habemus finem huius libelli […] anno domini MCCCCLIII sabbato in die s. Michaelis archangeli hora XXIII regrossatus a reverendo magistro Matthia de Czastolowicz."

35 Anonymus, *Brevilogus de grammatica metricus cum commentario*, in MS Prague, KMK, M 84, fol. 102v, cf. Patera, Podlaha, *Soupis rukopisů Knihovny Metropolitní kapitoly pražské*, vol. 2, p. 317.

36 *Liber decanorum facultatis philosophicae Universitatis Pragensis ab anno Christi 1367 usque ad annum 1585*, pars 2, eds. A. Dittrich, A. Spirk, Pragae, Typis Joan. Nep. Gerzabek, 1832, p. 17, 16, 36, 37. Cf. P. Kotau,

Matthias was also a member of the bachelors' exam committee in March 1449[37]. In 1457 he was provost of Charles College at the University of Prague[38]. According to the colophon quoted above, the reverend master Matthias of Častolovice was elected to the office of dean (*decanus*) of the collegiate chapter in Litoměřice in early October 1453[39]. According to another source he was dean of the Litoměřice collegiate chapter from 1443–1456[40]. Although the evidence is scarce, it is highly probable that we are dealing with one and the same person. We may thus put this hypothesis forward, and tentatively connect MS Prague, KMK, M 84 and its commentary on the *Massa* with the Prague milieu and the name of the aforementioned Prague master.

The commentary on verse 72 of the *Massa* from MS Prague, KMK, M 84 mentions only the German (and not Polish) language and contains references to German – "Theutonicum ydioma":

> There are many verbs meaning speech, demonstration, information that – whenever they appear – govern the dative case, e.g. significo tibi, do tibi, scribo tibi. He [sc. the author = Thomas of Erfurt] adds the general rule. If you want to have a general rule for rection of the dative, you should consider in general the signification of verbs used, when they are spoken in German. Namely, use the dependent names in plural in connection with verbs in German. When their termination is "-en" it means that the verbs [used] govern the dative case of any name whatsoever: proper or common. There is an exception – the verb "iuvat". Despite the fact that in German it produces "-den", [in Latin] it does not govern the dative but rather the accusative case. And I – says the author – do not claim it is a general rule, but it is verified by opinion like many kinds of reasoning[41].

Mistři pražské artistické fakulty v letech 1437–1448 [Masters of Prague Faculty of Arts 1437–1448], Praha, BA Diss. Charles University Prague, 2011, p. 80, accessible from: https://is.cuni.cz/webapps/zzp/download/120051408.

37 *Liber decanorum facultatis philosophicae Universitatis Pragensis*, pars 2, p. 39. Cf. Kotau, *Mistři pražské artistické fakulty*, p. 80.

38 K. Hrdina, "Seznam proboštů koleje Karla IV [List of Provosts of the College of Charles IV]", in *Věstník České akademie věd a umění*, 57 (1948), p. 5–15 (see p. 6). Cf. Kotau, *Mistři pražské artistické fakulty*, p. 80.

39 "Et sic est finis huius opusculi; regrossatum a reverendo mgro Matthia de Czastollowicz; anno illo electus in decanatus nove civitatis(?) luthomericensis, et hoc in octava sancti Jeronimi etc. anno domini 1453." Cf. Patera, Podlaha, *Soupis rukopisů Knihovny Metropolitní kapitoly pražské*, p. 317. For the location of the colophon, see above, p. 78, note 35).

40 J. Macek, *950 let litoměřické kapituly* [950 Years of Litoměřice Chapter], Kostelní Vydří, Karmelitánské nakladatelství, 2007, p. 50–52.

41 Anonymus, *Komentarz do Massa grammatice*, p. 182–183: "Multa sunt verba, que important eloquenciam vel manifestacionem vel noticiam que regunt dativum casum apparendo ut *significo tibi, do tibi, scribo tibi*. Subdit regulam generalem. Quod si tu vis habere regulam generalem de regimine dativi casus, tunc tu debes ex pleno vel ex toto considerare significatus(!) verborum loquendo Theutonice, videlicet applicando nomina appendencia in plurali numero ad ipsa verba in ydiomate Theutonico: que si terminantur in *en*, tunc verba regunt dativum cuiuslibet nominis tam proprii quam appellativi. Et excipitur hoc verbum *iuvat* quod quamvis in ydiomate Theutonico profertur in *den*, non tamen regit dativum, sed pocius accusativum. Et ego autor non dico regulam esse veram generaliter, sed opinione eam verificari ut in pluribus rationibus."

3. A link between Prague and Cracow attitudes to syntax in the fifteenth century?

It is clear, then, that the putative Prague commentary does not show any interest in anything we could call a Polish thread. Nevertheless, it has a specific feature that makes it worthy of taking into account as an interesting trace leading to a lost link in the history of late speculative grammar in fifteenth century Cracow. This trace is connected with the description of the grammatical concept of government (*regimen*) as presented in the commentary from Prague. This factor is also associated with the analogous description of the same concept by Cracow master John of Glogovia (Ioannes Glogoviensis, c. 1445–1507) in the *Exercitium secundae partis Alexandri* (*quaestiones* to the second part of Alexander de Villa Dei's *Doctrinale*)[42]. John, like many professors at the Arts Faculty was greatly influenced by the doctrine of modism, which was officially adopted in Cracow in the middle of the fifteenth century[43]. He also absorbed other layers of influence characteristic of several generations of teachers in Cracow, this being visible in his grammatical work. However, the "author of *modi significandi*" remained the prevailing authority throughout his work[44]. For these reasons the *Exercitium* may be considered to be a standard handbook of mixed didactic and modistic syntax taught at the University of Cracow in the late fifteenth century. It contains discussion of such syntactical issues as government and construction.

Before analysing the relationships between the Prague and Cracow concepts of those issues, explanations about medieval attitudes to government and construction need to be provided. In brief, a concept of *regimen* was applied to the relationship existing between the grammatical case of a "governed" noun - adjective or participle, and the "governing" – verb. Meanwhile, the concept of construction covered a wider range of syntactic combinations than those involving government[45].

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42 Cf. K. Estreicher, *Bibliografia Polska*, vol. XVII, Kraków, Drukarnia Uniwersytetu Jagiellońskiego, 1899, p. 177–178.

43 Gansiniec, *Metrificale Marka z Opatowca i traktaty gramatyczne XIV i XV wieku*, p. 132–148; J. Szujski, "Założenie i urządzenie Collegii Minoris", in *Archiwum do Dziejów Literatury i Oświaty w Polsce*, 1 (1878), p. 95–118, p. 97.

44 For information in this regard in English see "Summary" in Krauze-Błachowicz, *Jan z Głogowa i tradycja gramatyki spekulatywnej*, p. 392–398; K. Krauze-Błachowicz, "Ioannes Glogoviensis: The Modist Grammarian on the Boundary between the Middle Ages and the Renaissance", in *Przegląd Tomistyczny*, 9 (2003), p. 123–139; K. Krauze-Błachowicz, "Modi significandi in Johannes Glogoviensis' grammar", in *Mediaevalia. Textos e estudos*, 23 (2004), p. 53–65; K. Krauze-Błachowicz, "'Lasting' in and Lasting of Speculative Grammar", in A. Speer, D. Wirmer (eds.), *Das Sein der Dauer*, Berlin / New York, De Gruyter, 2008, p. 112–122; K. Krauze-Błachowicz, "Was Conceptualist Grammar in Use at Cracow University?", in *Studia Antyczne i Mediewistyczne*, 6[41] (2008), p. 275–285.

45 This presentation of the problem is simplified in order to facilitate an understanding of the juxtaposition of the concepts of *regimen* and construction in the two grammatical texts presented here. The minutiae and history of the concept of *regimen* in the Middle Ages are discussed in M. A. Covington, *Syntactic Theory in the High Middle Ages*, Cambridge, Cambridge University Press, 1984, p. 13–15; C. H. Kneepkens, "Magister Guido's View on Government. On Twelfth Century Linguistic Thought", in *Vivarium*, 16 (1978), p. 108–141; C. H. Kneepkens, "On Mediaeval Syntactic Thought with Special

Regimen was a pivotal term in didactic grammars of the turn of the thirteenth century, among others the versified *Doctrinale* of Alexander de Villa Dei. It was a concept frequently used by Robert Kilwardby in his *Commentary on the Priscianus minor* of the 1240's. At the same time, Kilwardby introduced new theoretical developments to the concept of *constructio*. The new idea of construction entwined the notions of dependency of the elements of syntactic combination, modes of signifying of parts of speech, and four Aristotelian causes[46]. According to Kilwardby, construction was a "congruent combination (union) of constructibles, caused by modes of signifying and invented to express a complete *affectus*"[47]. This definition was a causal one, as it can be explained by four Aristotelian causes:

1) an efficient cause – a constructor and a mode of signifying of parts of speech;
2) a formal cause – union of parts;
3) material cause – constructed parts;
4) final cause – the expression of complete *affectus*[48].

This causal approach to construction became popular in the thirteenth century among university grammarians. As Irène Rosier-Catach says, this causal definition became widely used, as much in commentaries on didactic verse grammars as the *Glosa Admirantes* (which was a gloss to the *Doctrinale* written before 1284), as in modistic treatises, for instance by Thomas of Erfurt[49]. Irène Rosier-Catach also shows the example of a discussion on the causes of solecism[50]. A mention concerning *regimen* in the context of the causal definition can be found in Petrus Croccus' *Commentarius* on the *Doctrinale* from the late thirteenth century. Nevertheless, what can be found is not a causal definition of the *regimen* treated separately from construction; in fact, *regimen* is identified with construction and the causal definition of the latter is used[51].

Reference to the Notion of Construction", in *Histoire, Epistémologie, Langage*, 12–2 (1990), p. 139–176; L. G. Kelly, *The Mirror of Grammar, Theology, Philosophy and the "Modistae"*, Amsterdam / Philadelphia, John Benjamins, 2002, p. 177–184. Cf. Krauze-Błachowicz, *Jan z Głogowa i tradycja gramatyki spekulatywnej*, p. 267–269, 282–289.

46 C.H. Kneepkens, "Robert Kilwardby on Grammar", in H. Lagerlund, P. Thom (eds.), *A Companion to the Philosophy of Robert Kilwardby*, Leiden / Boston, Brill, 2013, p. 17–64, p. 54.

47 Robert Kilwardby, *Commentary on the Priscianus minor* (hereafter *CPMi*), MS Vatican, BAV, Chigi L.V. 159, fol. 25ra: "Constructio est congrua constructibilium unio ex modis significandi causata ad affectum plenum indicandum inuenta." Quoted after Kneepkens, "Robert Kilwardby on Grammar", p. 51.

48 Robert Kilwardby, *CPMi*: "[…] sed cause constructionis sunt. Est enim efficiens ut constructor et modus significandi in partibus et formalis ut partium unio et materialis ut partes constructe et finalis ut completi affectus expressio." Quoted after Kneepkens, "Robert Kilwardby on Grammar", p. 51.

49 Rosier-Catach, "Modisme, pré-modisme, proto-modisme: pour une définition modulaire", p. 59.

50 Namely in the commentaries on *Ars Maior III*, see Rosier-Catach, "Modisme, pré-modisme, proto-modisme: pour une définition modulaire", p. 60.

51 Petrus Croccus (Petrus de Alvernia?), *Commentary on the* Doctrinale *of Alexander de Villa Dei*, MS Troyes, Médiathèque du Grand Troyes, 1142, fols 77r–126v, f. 77r: "Item debemus scire quid sit causa regiminis sive constructionis, quia pro eodem accipio 'regimen' et 'constructionem' quantum ad istam quaestionem […]. Item constructio est congrua dictionum ordinatio ex modis significandi

The causal definition of construction became emblematic for the *modistae*[52]. In fact, this concept of construction was a key notion of modistic syntax. Some of the modists, like Thomas of Erfurt, did not employ the notion of *regimen* at all[53]. According to him, there was only one general concept of binary construction. Its correctness, i.e. congruity, depends on the modes of signifying that characterise every part of speech and its accidents, such as case, number, person etc. individually. Thanks to such an approach, the whole syntax can be presented in terms of modes of signifying. In short, a proper construction is a combination (*unio*) of two constructibles with "proportional" modes of signifying and the syntactic concepts of dependency and determination between them[54]. Thomas of Erfurt equipped his causal definition of construction with an exposition of the causes that became exemplary for the late followers of the modistic trend[55]. The four causes are similar to Kilwardby's with one exception. There is a double efficient cause in Thomas's explication: an intrinsic efficient cause – the "modes of signifying" and an extrinsic efficient cause – the "intellect" that substituted the "constructor".

The late modistic[56] grammatical tradition generally rejected the rigid systematic approach of Thomas of Erfurt, preferring the traditional presentation of government. The commentary on the *Massa* presented above is an example of such an approach[57]. Thus, it has already been noticed that in commentaries on traditional

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causata, et quia intentio facta est de modis significandi, ideo videamus [videtur *ms.*] aliquid de modis significandi." Quoted after Covington, *Syntactic Theory in the High Middle Ages*, n. 11, p. 141–142. As appropriately mentioned by the same scholar, "[Petrus] in writing a commentary on the *Doctrinale* could hardly have avoided the topic. […] It is obvious that construction is the theoretical concept he is really interested in developing, and his brief discussion of […] *regimen* is meant only to explain the use of the term in *Doctrinale*. See Covington, *Syntactic Theory in the High Middle Ages*, p. 47. The suggestions concerning Peter of Auvergne's authorship of the *Commentary* appear in Grondeux, "La *grammatica positiva* dans le Bas Moyen-Age", p. 604; cf. Rosier-Catach, "Modisme, pré-modisme, proto-modisme: pour une définition modulaire", p. 73; cf. S. Ebbesen, "The Logical Writings of Peter of Auvergne", in C. Flüeler, L. Lanza, M. Toste (eds.), *Peter of Auvergne: University Master of the 13th Century*, Berlin, De Gruyter, 2014, p. 71–88.

52 It was popularized e.g. by the anonymous commentary to Ludolph de Luco's *Flores*, see Rosier-Catach, "Modisme, pré-modisme, proto-modisme: pour une définition modulaire", p. 59.

53 Some modists retained the older "morphological" notion of *regimen* next to the more "modern" syntactical concepts of *dependentia* and *constructio*. Radulphus Brito mentions *regere* only once, Martin of Dacia and Thomas of Erfurt did not use the term at all, Covington, *Syntactic Theory in the High Middle Ages*, p. 47–48; cf. Rosier-Catach, "Modisme, pré-modisme, proto-modisme: pour une définition modulaire", p. 64.

54 Thomas of Erfurt, *Grammatica speculativa*, ed., transl., comm. G. L. Bursill-Hall, London, Longman, 1972, p. 278: "constructio est constructibilium unio, ex modis significandi, et intellectu causata, ad exprimendum mentis conceptum compositum finaliter adinventa."

55 Thomas of Erfurt, *Grammatica speculativa*, p. 278: "nam per ly constructibilium tangitur causa materialis; per ly unio, causa formalis; per ly ex modis significandi causata tangitur causa efficiens intrinseca; per ly ex ab intellectu causata, causa efficiens extrinseca; per ly ad exprimendum mentis conceptum tangitur causa finalis."

56 For the concept of "late modism" see Rosier-Catach, "Grammar", p. 214; cf. n. 12 above.

57 Cf. Rosier-Catach, "Modisme, pré-modisme, proto-modisme: pour une définition modulaire", p. 64, n. 25.

texts, it was utterly impossible not to include *regimen* in the discourse[58]. However, some of the fifteenth century late commentators seem to be mostly concerned with the concept of construction; they dedicated a greater amount of time to this than to *regimen*[59]. John of Glogovia in his *Exercitium* did not follow this pattern, however: not only did he discuss the notion of *regimen,* but he also assigned a causal definition to this concept[60]. The analysis of the components of definition by means of description of the four causes of *regimen* is expressed in the same words as Thomas' analysis of the four causes of construction. We are presented with the following four causes of *regimen*:

1) the congruous combination (*collatio*) is a formal cause;
2) the governing and governed words are the material cause;
3a) the modes of signifying form the intrinsic efficient cause;
3b) the intellect is an extrinsic efficient cause;
4) the congruous and complete sentence is a final cause[61].

Glogovia's "four-causes" definition of *regimen* functions in his *Exercitium* independently of the definition of *constructio.* His prolonged and comprehensive attempt to render the notion of the *regimen* a theoretical concept seems to be an exceptional endeavor in the Cracovian environment. Moreover, there are no other traces of such a fully developed causal approach to *regimen* in what is preserved in the Cracovian tradition of grammar. On the other hand, the causal approach to

58 I. Rosier-Catach, "Introduction", in Gosvin de Marbais, *Tractatus de constructione*, ed. I. Rosier-Catach, Nijmegen, Ingenium Publishers, 1998, p. xxviii; cf. Gerardus de Zutphania, *Glosa notabilis secundae partis Alexandri*, Coloniae 1499, fol. A4r.

59 This is the case of Gerardus de Zutphania, see Gerardus de Zutphania, *Glosa notabilis secundae partis Alexandri*, fol. O3v.

60 Ioannes Glogoviensis, *Exercitium secundae partis Alexandri*, Cracoviae, Jan Haller, 1517, fol. a5r-a5v: "Regimen est apta et rationalis collatio dictionis casualis rectae, formaliter vel virtualiter ad aliam dictionem scilicet regentem ad standum sub certa habitudine casuali, sic quod non sub qualibet alia cum iuvamine intellectus, ut fiat oratio congrua et perfecta. […] quae definitio regiminis praedicta est causalis, eo quod datur per quattuor genera causarum. Tunc autem res perfecte scitur et cognoscitur, quando eius causae sciuntur."

61 Ioannes Glogoviensis, *Exercitium secundae partis Alexandri*, fol. a5v: "Causa formalis tangitur, cum dicitur: 'apta et rationalis', id est conveniens et congrua collatio. Materialis tangitur, cum dicitur: 'dictionis casualis rectae ad aliam dictionem', scilicet dictionem regentem. Causa efficiens tangitur cum dicitur: 'cum iuvamine intellectus'. Finalis tangitur cum dicitur: 'ut fiat oratio congrua et perfecta'"; f. a6v: "Causa efficiens – 'cum iuvamine intellectus' – notandum, quod est duplex: […] extrinseca et quaedam intrinseca. Intrinsecae causae regiminis sunt modi significandi, quorum proportio requiritur inter dictionem regentem et rectam. […]. Praeparant et disponunt ipsas dictiones ad regimen, quod postea per intellectum completur et perficitur. Et dicuntur intrinsecae, pro tanto quia sunt intra dictiones et in dictionibus, quarum sunt modi significandi. Omnis enim proprietas est in illo, cuius est proprietas, modo modi significandi sunt proprietates dictionum et partium. Causa autem efficiens extrinseca regiminis est intellectus humanus, quia dictionem regentem et rectas dispositas per modos significandi unit et coniungit, sic quod una regit aliam. Et dicitur intellectus causa efficiens extrinseca regiminis, pro tanto vel ideo quia intellectus est extra constructibilia."

regimen in general is not unknown in the tradition of speculative grammar[62]. When searching for a position closely similar to that presented by Glogovia, we may invoke Petrus Croccus[63]. There is also a symptomatic hint in the fifteenth century minor commentary on the second part of the *Doctrinale* by William Zenders of Weert, described by Cornelis H. Kneepkens[64]. As Kneepkens observes, William makes an addition to the definition of construction as found in Thomas of Erfurt. Specifically, he broadens the point concerning the causal role of the modes of signifying by saying that they are the causes of both construction and government[65]. Neither Croccus' nor Zenders' attempts are aimed at presenting a separate full "four-causes" definition of *regimen* that would function in their works independently of the definition of construction. Nevertheless, taken together with Glogovia's account and – as we will see – with the Prague commentator's text, they may point to the existence of a tradition of such definitions.

The commentary on the *Massa grammaticae*, putatively of Prague origin, actually shares this specific feature of Glogovia's work. Its author gives a similar definition of *regimen* and a list of causes[66]. However, his efficient causes are not intrinsic and extrinsic as in Glogovia; they are close (*propinqua*) and remote. The modes of signifying are a closer cause, and a congruous combination (*collacio*) of two parts (i.e. of *regibile* and its counterpart called "more principal constructible") is a remote cause. The commentator, who usually invokes the authority of "Thomas Erfordiensis", refers to an unknown "Gemista" when speaking about *regimen*. In fact, the further context of his discussion resembles literally the phrasing of Kilwardby and of the *Glosa Admirantes*[67].

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62 Cf. Simon Dacus, *Domus gramatice*, in Simon Dacus, *Opera*, ed. A. Otto (Corpus Philosophorum Danicorum Medii Aevi 3), Hauniae, Gad, 1963, p. 58: "Dependentia est causa regiminis, et quicquid participat magis de causa, participat magis de effectu"; Cf. I. Rosier, *La grammaire spéculative des Modistes*, Lille, Presses Universitaires de Lille, 1983, p. 143.

63 Cf. supra, p. 81, n. 51.

64 C. H. Kneepkens, "Some Notes on the Revival of Modistic Linguistics in the Fifteenth Century: Ps.-Johannes Versor and William Zenders of Weert", in R. L. Friedman, S. Ebbesen (eds.), *John Buridan and Beyond: Topics in the Language Sciences, 1300–1700*, Copenhagen, The Royal Danish Academy of Sciences, 2004, p. 69–120, p. 102.

65 C. H. Kneepkens, "Some Notes on the Revival of Modistic Linguistics in the Fifteenth Century: Ps.-Johannes Versor and William Zenders of Weert", p. 103, n. 88.

66 Anonymus, *Komentarz do Massa grammaticae*, p. 170: "Gemista vero ponit aliam diffinicionem regiminis dicens: regimen est determinati casus regibilis collacio et coartacio ex modis significandi pricipalioris constructibilis proveniens et amborum congrua unione causata ad eandem congruitatem finaliter conservandam ordinate. Et illa diffinicio est bona. Probatur sic. Illa diffinicio est bona que datur per omnes causas indicans diffiniti essenciam. Sed predicta diffinicio est huiusmodi, ergo est bona. [...] per hoc quod dicitur *determinati casus regibilis*, tangitur causa materialis, nichil enim est regibile nisi sit casuale. Sed per ly *collacio* tangitur causa formalis, sed per ly *ex modis significandi* tangitur causa efficiens remota, et per ly *ex amborum unione congrua causata* tangitur causa efficiens propinqua. Sed per ly *quod dicitur ad eandem congruitatem conservandam* tangitur causa finalis."

67 Cf. Ch. Thurot, *Extraits de divers manuscrits latins pour servir à l'histoire de doctrines grammaticales au Moyen Âge*, Paris, Imprimerie Impériale, 1869, p. 219–220; cf. Anonymus, *Komentarz do Massa grammaticae*, p. 172–173.

In what, then, lies the similarity between the descriptions of *regimen* offered by the Prague commentator and John of Glogovia? Firstly, both scholars share the same methodological assumptions. Their efforts are aimed at creating truly theoretical commentaries, where even such a traditional concept as *regimen* would be anchored in what they thought was the framework of *modi significandi*. Secondly, and remarkably, despite other options, they both choose the idea of presenting *regimen* in the form of a four-member causal definition.

Further manuscript research is required to determine how widely this definition was spread in medieval schools. It might turn out that there was no straightforward genealogical connection between the Prague commentary and the later teaching of John of Glogovia in the case of *regimen.* Still, although the evidence is rather circumstantial, one cannot help but wonder whether the above affinity could be explained by the transmission of texts and/or teachers along the traditional Bohemian-Polish trail[68].

* * *

The intellectual ties connecting the Universities of Prague and Cracow were created by traveling people, traveling manuscripts and "traveling" ideas, including those on grammar which I have described in this article. Thanks to students, bachelors and professors traveling to Prague, the University of Cracow was able to build its prestige. I have recalled here the figure of an outstanding theologian, Bartholomew of Jasło, who was co-creator of this splendour. I have also drawn attention to the valuable Paris manuscript from the turn of the fourteenth century which he brought from Prague (MS Cracow, BJ, 649). This manuscript was likely to have sparked growing interest in philosophical grammar in Cracow. There are other important documents of this type. One of the oldest pieces of evidence for the teaching of grammar in the first *studium generale* in Cracow established by King Casimir – is the fourteenth-century Cracovian manuscript *Massa Grammaticae*. I have pointed out that even though the oldest copy of the text is in Cracow, its tradition is associated with teaching grammar in Bohemia. I have shown that, contrary to Ryszard Gansiniec's earlier thesis, the poem was not written specifically for Polish students. It was the subject of lectures in Prague and Litoměřice with late-modist anonymous commentary. I have also proved that one of the teachers who used such a commented text in the mid-fifteenth century was the Prague master Matthias of Častolovice. The analysis of the content of that commentary, compared with the material taught in the fourth quarter of the fifteenth century by the University of Cracow professor John of Glogovia, has revealed an affinity in their approach to the syntactic concept of government. The question has been raised as to whether its appearance in Prague

68 The specificity of the concept of *regimen* in John of Glogovia and its similarity to the concept employed in the Prague commentary on the *Massa grammaticae* has been noted in K. Krauze-Błachowicz, W. Wciórka, "What is new in Cracow modistic tradition", in E. Jung (ed.), *What is New in the New Universities. Learning in Central Europe in the Late Middle Ages (1348–1500)*, Warszawa, Wydawnictwo IFiS PAN, 2018, p. 257–271.

and Cracow may suggest a common source or some link between the grammatical traditions of those two places. Therefore, one can see the need to search further for this lost trace in the history of speculative grammar. I believe that the issues I have raised here bring something new to the well-known map of links between the University of Prague and the University of Cracow. Hence, the continuation of research will allow this map to be further completed[69].

69 I wish to thank Professor Marek Gensler and Dr Janice Bell for the linguistic revision of this paper.

ANNEMIEKE R. VERBOON

Why Animals Cannot Imagine Unseen Things? From the Prague Compendium *Parvulus philosophiae naturalis* to the Cologne Teachings of Lambertus de Monte*

Introduction

The *Parvulus philosophiae naturalis* is a short, late-medieval philosophy compendium, presenting the *Physica*, *De generatione et corruptione*, and *De anima*. The text was probably written around 1400 for educational purposes at Prague University by Peter of Dresden. In a prologue, it addresses an intended readership of novices (young students), facing their first introduction to the natural philosophy of Aristotle. The text promises the students a clear presentation[1]. Since its introduction, the *Parvulus philosophiae naturalis* has been used in undergraduate education in many Central and Eastern European universities for more than a century, including the universities of Cologne and Leipzig, Basel, Erfurt, Vienna, Cracow, Uppsala, among others[2]. It seems that the Prague compendium became broadly popular and formed a generic starting

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1 Petrus de Dresda, *Parvulus philosophiae naturalis*, ed. A. I. Dumała ("Parvulus philosophiae naturalis Piotra z Drezna"), in *Studia Antyczne i Mediewistyczne*, 39–4 (2006), p. 273–294: "Quam ob eius prolixitatem ac obscuritatem noviciis et in physicali sciencia nondum inbutis satis est grave propallare ac declarare eatenus (ut novicii in Aristotelis scienciam securiorem habeant ingressum verum etiam faciliorem) tractatulus hic compendiosus ac fructuosus uberiores eiusdem sciencie continens flores discipulis nondum fundatis est coelementatus. [Because, of its (sc. Aristotle's science of nature) length and obscurity, it would be rather incommodious to diffuse it or to convey it clearly to a point, to beginners and those who are not yet experts in natural science. In order that those beginning to learn Aristotle's science have a safer entry point – and a simpler one – this small treatise, abbreviated and fruitful, and containing the richest flowers of this science, has been composed of these same elements for those students who have not yet begun solid preparation (Trans. A. V.)]."

2 For more about the (80) surviving fifteenth-century manuscript copies of the *Parvulus philosophiae naturalis*, see A. R. Verboon, "Brain ventricle diagrams: A century after Walther Sudhoff new manuscript sources from the XVth century", in *Sudhoffs Archiv*, 98–2 (2014), p. 212–233, here 218.

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point for different masters to discuss and elaborate according to their school philosophy (Albertist, Thomist, Scotist). Studying its reception not only shows its central place in education, but also the (dis)continuation of standpoints among several generations of teachers, as well as the discrepancies between the different philosophical traditions as taught in the schools of the different universities.

The objective of this paper is to show how the basic Prague compendium was used in teaching outside Prague, and more precisely in the Thomist school of the University of Cologne by the end of the fifteenth century. During that time, Lambertus de Monte (Lambert of Cologne) was the regent master at the *Bursa Montana* in Cologne (Thomist faction, *via antiqua*)[3]. We know of at least one anonymous teacher in this faction that taught on the basis of the Prague compendium *Parvulus philosophiae naturalis* to introduce his undergraduate students to the main books of Aristotle (see below).

More precisely, the paper discusses the inner senses, because this is one of the points on which discrepancies are to be expected between the sources. As generally known, Albert the Great and Thomas Aquinas developed different theories of the internal senses. Albert proposes a fourfold classification in *De homine*, and a fivefold one in *De anima*, inspired by Avicenna, whereas Thomas expands on Averroes and his fourfold classification. The *Parvulus philosophiae naturalis* seems to follow the Avicennian-Albertist strand in his interpretation of the imagination, separating it in 1. a retentive imagination and 2. a compositive or formative imagination (also called phantasy). The retentive type is the power to replicate stored representations as such, whereas the formative power has the capacity to employ these stored representations, and combine and divide them into new, and even imaginary representations. According to Albert the Great, the two powers are separated into different powers, whereas Thomas Aquinas attributes both functions to the one power of imagination[4]. Aquinas's imagination then is responsible for replicating, manipulating, combining and dividing imaginary forms: "When from the imaginary form of gold, and imaginary form of a mountain, we compose the one form of a golden mountain, which we have never seen." "But", Aquinas continues, "this operation is not to be found in animals other than man, in whom the imaginative power suffices

3 At this time, Cologne was marked by the so-called *Wegestreit* that split the philosophical faculties of European universities into different approaches to philosophy. The polemics of the *Wegestreit* were between the *via moderna* (a nominalist, Ockhamist camp) and the *via antiqua* (a realist, Thomist and Albertist camp). For more about the *Wegestreit*, see: G.-R. Tewes, *Die Bursen der Kölner Artisten-Fakultät bis zur Mitte des 16. Jahrhunderts*, Berlin, Böhlau, 2015; M. J. F. M. Hoenen, J. H. J. Schneider (eds.), *Philosophy and Learning: Universities in the Middle Ages*, Leiden / New York / Köln, Brill, 1995. For a detailed analysis of Albert the Great and Thomas Aquinas on the point of phantasy and imagination on the tenet that concerns us here, see D. Black, "Imagination and Estimation: Arabic Paradigms and Western Transformations", in *Topoi*, 19–1 (2001), p. 59–75; E. P. Mahoney, "Sense, Intellect, and Imagination in Albert, Thomas, and Siger", in N. Kretzmann, A. Kenny, J. Pinborg (eds.), *The Cambridge History of Later Medieval Philosophy: From the Rediscovery of Aristotle to the Disintegration of Scholasticism 1100–1600*, Cambridge, Cambridge University Press, 1982, p. 602–622.

4 Thomas Aquinas, *Summa Theologiae*, I, quest. 84, art. 6 ad 2, cf. R. Pasnau, *Thomas Aquinas on Human Nature: A Philosophical Study of "Summa Theologiae" Ia 75–89*, Cambridge, Cambridge University Press, 2001, p. 282.

for that[5]." Thomas Aquinas gives no explicit explanation of why animals would not be able to phantasize fiction. Lambertus de Monte, from the Thomist faction of the *via antiqua* in 15th century Cologne, finds this problematic and sets out for an explanation. He develops a theory, maybe also with the aim of profiling his school better in the debate with the Albertist faction.

The Thomist Anonymous Master teaching from the Prague compendium *Parvulus philosophiae naturalis* would have to give some explanation about the Avicennian-Albertist scheme of the compendium. For this he updates the insights and solves problems encountered according to contemporary works, as will be demonstrated in this paper. Thus, the Anonymous Master added an analysis of the formative imagination and, in particular, an analysis of the incapacity of animals to imagine unreal things.

I will claim in this paper that the acknowledgement of the problem and its solution belongs to the Cologne context of the late fifteenth century, showing an alignment of different sources in the Thomistic school of thought. The Prague compendium may form the spine and departure point for teaching, but was quickly abandoned to elaborate on more trenchant local questions and developments. The contribution that this paper intends to make is therefore manifold. It promotes our understanding of 1) the use of the Prague compendium over time and place, 2) the Prague compendium as a stepping-stone to expand competitive local views, 3) how different text sources were prepared and aligned under the direction of the school's leader, who had his own way of interpreting and improving Thomas. Finally, 4) the existence of an ongoing debate about the interpretation of Thomas's notion of imagination, and in particular Thomas's claim about the lack of creative power in non-human animals. The interpretation of the Cologne school, possibly developed originally by Lambertus de Monte, provides an original view to the Thomistic corpus, with factors that have been overlooked thus far.

In the following sections, I will introduce the text sources, and demonstrate the development of the philosophical tenet of the formative imagination, in: [1] *Parvulus philosophiae naturalis*, [2] the *expositio* (lecture) of the Anonymous Master, [3] Lambertus de Monte's *Copulata super tres libros De Anima cum textu iuxta doctrinam excellentissimi doctoris sancti Thome de Aquino,* and [4] conclusions. The presentation of the sources is not chronological. The *Parvulus philosophiae naturalis* [1] dates from about 1400, and the lecture [2] on this compendium of our Anonymous Master date from the period 1487–95. These texts are dealt with consecutively, because the latter represents a direct reception of the former. Lambertus de Monte's philosophy [3], is presumably unrelated to the compendium [1], but forms an important source for the teachings of our Anonymous Master [2], which

5 Thomas Aquinas, *Summa Theologiae*, I, quest. 78, art. 4 co: "Avicenna vero ponit quintam potentiam, mediam inter aestimativam et imaginativam, quae componit et dividit formas imaginatas; ut patet cum ex forma imaginata auri et forma imaginata montis componimus unam formam montis aurei, quem nunquam vidimus. Sed ista operatio non apparet in aliis animalibus ab homine, in quo ad hoc sufficit virtus imaginativa." Cf.: *Summa Theologiae*, I, quest. 12 art. 9, ad 2; *De Veritate*, quest. 8, art. 5 co.; *De Veritate*, quest. 8, art. 9 co.

it necessarily predates. Lambertus de Monte's philosophy is invoked here after the lecture of the Anonymous Master to elucidate the meaning of the latter's teachings, which would remain obscure without it. As Lambertus's solution to the question "why can non-human animals not imagine unreal things?" is philosophically interesting, this paper devotes ample attention to his discussion of it.

For the quotations of the *Parvulus philosophiae naturalis* in this paper, I use Dumała's edition, corrected where necessary[6]. The choice of manuscripts used for the quotations from the Anonymous Master is discussed in section 2[7], and of Lambertus de Monte in section 3[8]. All translations are of the author of this paper.

1. *Parvulus philosophiae naturalis*

As mentioned above, the *Parvulus philosophiae naturalis* is a short, late-medieval philosophy manual[9]. The text was written for educational purposes, probably by Peter of Dresden, before 1404 and after 1380[10]. It is not clear whether he wrote it at the university during his years as university professor; but if not, then in the geographical and intellectual proximity of Prague University. Peter of Dresden is an apt fit for the period and the region, and a few manuscript copies also identify him as the author; one of these manuscripts was written in Erfurt before 1408, which makes it a rather reliable source for identification[11]. The manual is an epitome of 1) *Physica,* 2) *De generatione et corruptione*, and 3) *De anima*. The text-history of the *Parvulus philosophiae naturalis* is complex. It is a summary of the *Summa naturalium* (also called *Philosophia pauperum*) of Albert of Orlamünde (fl. late thirteenth century), who was active in the region of Erfurt, but was long considered a work of Albert the Great. Birkenmajer distinguished two different redactions of book V of the *Summa naturalium*: a school redaction (redaction A), which is identified as the original form of book V, and a 'brain ventricle redaction' (redaction B). Geyer edited both. Part III of the *Parvulus philosohiae naturalis*,

6 Petrus de Dresda, "Parvulus philosophiae naturalis", p. 273–294.

7 The following manuscripts provided the quotations: MS Berlin, Staatsbibliothek, theol. fol. 247; MS Würzburg, Universitätsbibliothek, M. ch. fol. 118; MS Würzburg, Universitätsbibliothek, M. ch. fol. 297.

8 The edition of Quentell (c. 1492) provided the quotations: ed. Q = [Cologne, Heinrich Quentell], c. 1492. Darmstadt, inc. III 85 (accessible from: http://tudigit.ulb.tu-darmstadt.de/show/inc-iii-85/).

9 Petrus de Dresda, "Parvulus philosophiae naturalis", p. 273–294. Dumała's edition is based on the Cracow manuscripts – it is essentially identical to what I have been able to verify with MS Erlangen, Universitätsbibliothek 496, fols 1r–26r (18r–18v flyleaf). A.D. 1453–1460, and the editions of Arnold of Cologne, Leipzig, 1495, and Bartolomeus Arnoldi, Vienna, 1510.

10 Petra Mutlová indicates, rightly, that there is not abundant proof of Peter of Dresden's authorship; however, she unfortunately does not substantiate this observation further. Cf. P. Mutlová, *Radicals and Heretics: Rethinking the Dresden School in Prague*, Diss. Central European University, 2010, p. 57.

11 However the proof is thin. There are two documents positively confirming Peter of Dresden's authorship. A codex from Munich has a heading of *Tractatulus parvus translatus per M. Petrum de Dresden ex summulis Alberti* (MS Munich, Bayerische Staatsbibliothek, clm 18917), written in Erfurt, ante 1408; a manuscript presently in Vienna (MS Vienna, ÖNB, Cod. 5242, fol. 5v, fifteenth century) claims that the author of the *Parvulus* was "Magister Petrus Gerticz, quondam rector scolarum in Dresen".

about the soul, corresponds to book V (redaction A) of the *Summa naturalium*, and excerpts the original form[12]. Because of this affiliation, the text of the *Parvulus philosophiae naturalis* is largely indirectly inspired by Albert the Great and is therefore considered Albertist, which is apparent in the part about *De anima*, among other places.

The *Parvulus philosophiae naturalis* was used in several Eastern and Central European universities. In Leipzig University, for example, the compendium was used in the *lectio* for bachelor education. Professor Virgilius Wellendörffer († 1533) mentioned that he had lectured on the *Parvulus philosophiae naturalis* in 1488 at Leipzig University, a lecture attended by 98 auditors[13]. And indeed, the manuscript volume of Professor Wellendörffer includes a copy of the *Parvulus philosophiae naturalis* with many annotations[14]. A statute from 1496 mentions the *Parvulus philosophiae naturalis* still among the *resumtiones* (*sic*)[15]. In Leipzig terminology, *resumtiones* were a kind of rehearsal class about the easier topics, comparable to the *lectiones extraordinariae* elsewhere, readings allowed during the short vacations at Christmas, Easter and Pentecost, and during the longer summer vacation[16]. In 1495, the first printed *Parvulus* was made – in Leipzig – and reprinted later that year, and again in 1499, 1502, 1505, 1509, 1510, 1511, 1512 and 1514 in the same university town (and other editions elsewhere)[17]. The *Parvulus philosophiae naturalis* seems to have

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12 A. Birkenmajer, "Zur Bibliographie Alberts des Grossen", in *Philosophisches Jahrbuch der Görres-gesellschaft*, 37 (1924), p. 271. See also B. Geyer, *Die Albert dem Großen zugeschriebene Summa Naturalium (Philosophia pauperum). Texte und Untersuchungen*, Münster in Westfalen, Aschendorff, 1938, p. 21–25. The *Summa naturalium* of Albert of Orlamünde is partly edited and published in Geyer, *Die Albert dem Großen zugeschriebene Summa Naturalium*. After his "Nachträge zur Summa" (Nachtrag I: p. 4*–8*; Nachtrag II: p. 8*–31*), Geyer published parts of Book I, cc. 12–13 of the *Summa* (p. 32*–37*) and the entire Book V (version A: p. 38*–62*; version B: 63*–82*). A full edition (though uncritical) of the *Summa* (presumably version B) is found in the *Opera omnia* edition of Albertus Magnus's works *Alberti Magni Opera omnia*, ed. A. Borgnet, 38 vols, Paris, Vivès, 1890–1899, V, p. 444–536. For a list of further editions see: R. Schönberger, A. Quero Sánchez, B. Berges, L. Jiang (eds.), *Repertorium edierter Texte des Mittelalters aus dem Bereich der Philosophie und angrenzender Gebiete*, 2 vols, Berlin, De Gruyter, 2011, I, p. 206 sq. For a discussion about the authorship, see: Geyer, "Die Albert dem Großen zugeschriebene Summa Naturalium (Philosophia pauperum). Texte und Untersuchungen", p. 42–47; M. Grabmann, *Die Philosophia Pauperum und ihr Verfasser Albertus von Orlamünde*, Münster in Westfalen, Aschendorff, 1918, p. 29–33; P. Mandonnet, "Albert le Grand et la philosophia pauperum", in *Revue néo-scolastique de philosophie*, 36 (1934), p. 230–262.

13 MS Leipzig, Universitätsbibliothek, Cod. 1470, f. 275r. See R. Helssig, "Die wissenschaftlichen Vorbedingungen für Baccalaureat in Artibus und Magisterium im ersten Jahrhundert der Universität", in *Beiträge zur Geschichte der Universität Leipzig im fünfzehnten Jahrhundert: zur Feier des 500 jährigen Jubiläums der Universität*, Leipzig, 1909, p. 1–93, p. 33–34.

14 Helssig, "Die wissenschaftlichen Vorbedingungen", p. 34.

15 F. Zarncke, *Die Statutenbücher der Universität Leipzig*, Leipzig, 1861, p. 24.

16 Helssig, "Die wissenschaftliche Bedingungen", p. 52.

17 It is quite conceivable that the faculty encouraged and even invested or commissioned the books for its students. We see, for example, that in the summer semester of 1540 it was decided to replace the readings of Albert the Great by the *compendium physices* of Johannes Feldkirch (Velcurius) for the duration of a year, because there were not enough copies of the first edition (its reprint would have cost 125 guilders and the faculty's cash box was empty). *Die Matrikel der Universität Leipzig*, 3 vols, ed. G. Erler, Leipzig, Giesecke & Devrient, 1895–1902, vol. II ("Die Promotionen von 1409–1559"), p. 1540, l. 658

been replaced somewhat after 1514 by another compendium. As a consequence, students would no longer buy the book and its impression stopped.

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The *Parvulus philosophiae naturalis* distinguishes between five internal senses: 1) common sense, 2) imagination, 3) formative power, or phantasy, 4) estimative (cogitative for human beings) power, 5) memory[18]. Moreover, although "dual motive power" is usually not counted, it is mentioned among the distinctions characterized above. The scheme is not, however, explicitly justified in the *Parvulus philosophiae naturalis*. We can interpret it along Avicennean lines as follows: the scheme associates different acts with different objects (accidental and incidental), and distinguishes between composing and retentive powers. Common sense apprehends all the different sensory qualities of external objects. Imagination preserves these representations. The formative power is a middle power, recomposing sensory representations and combining one with another. Cogitation and memory have as their object incidental perceptions, like friendship, which has a relational quality. Cogitation has the task of bringing forth, or extracting, these non-sensorial perceptions from the sensations. Memory is the power that stores them for future reference.

The *Parvulus philosophiae naturalis* mentions the following about the imagination, phantasy, and the cogitative powers:

> [1] Sed ymaginatio autem est sensibilium proprietatum obiecto absente perceptio. Et differt a sensu communi, quia sensus communis indiget presentia obiectorum rei nisi in somnis, imaginatio vero non. Item sensus communis non servat ydolum sive speciem perceptam in obiecti absentia, sed ymaginatio conservat eam usque ad abstractionem, que sit per intellectum agentem.
>
> Formativa potentia[19] est componens speciem cum specie et sic facit mirabilia monstra, scilicet chimeras[20], et alia, quae ab aliis vocatur phantasia. Definitur tamen

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and p. 1546, l. 694. Petrus de Dresda, *Parvulus philosophiae naturalis*, ed. A. I. Dumała, "Parvulus philosophiae naturalis Piotra z Drezna", p. 273–294.

18 Peter of Dresden follows the fivefold scheme and separates imagination from the formative power or phantasy. He copies the *Summa naturalium* (recension A) "Redeamus ad potentias animae sensibilis apprehensivas deintus, quae sunt, quinque, scilicet sensus communis, imaginatio, e formativa sive phantasia, aestimativa, memorative", despite the fact that Geyer read the imagination and formative power to be one sense "imaginatie formativa sive phantasia" in his treatment of the text (*Philosophia pauperum*, "Die Albert dem Großen zugeschriebene Summa Naturalium", ed. Geyer, p. 52*, lines 11–13). It bears noting that Dumała used the *Summa naturalium* (recension B, Borgnet edition) in his comparison with the *Parvulus philosophiae naturalis* (which is rather dependent on recension A, see also note 13). Cf. Dumała, "Parvulus philosophiae naturalis", p. 278.

19 Cf. Albertus de Orlamünde, *Summa naturalium*, recension A (ed. Geyer), V. vi, 54*–55*.

20 Avicenna, *Liber de anima* I. 5 (Van Riet, p. 89): "The power that is called the imaginative has the task of composing one thing from imagination with another, and dividing one thing from another, as it likes." However, according to Avicenna, the "formative" (*formativa, formans*) refers to the storehouse of imagination, in the imagination (*Liber de anima* I. 5 [p. 88–89]; IV. 2, [p. 13]; V. 8 [p. 183]).

sic: phantasia est motus factus a sensu moto a sensibilibus, quae sunt extra[21]. Unde phantasia dicitur apparitio sive visio.

Aestimativa est[22], quae etiam cogitativa dicitur, cuius officium est elicere intentiones non sensatas ex sensatis, ut intentiones amicitiae et inimicitiae; et per istam virtutem ovis[23] iudicat lupum[24] esse inimicum[25].

(Imagination, however, is of sensible properties in the absence of the perceptible object. It also differs from the common sense, because the common sense requires the presence of the [sense] objects, unless in sleep, but imagination does not. In addition, the common sense does not preserve the mental representation perceived in absence of the object, but imagination preserves it until it can be abstracted, which is [done] by the agent intellect.

The formative power, that others have called phantasy, is the power that combines species with species, and thus makes extraordinary monsters, like chimeras, and other such things. It was defined as follows: phantasy is a motion that is produced by a sense being moved by the sense objects, which are external. Because of that, phantasy is called apparition or vision.

The estimative [power] is that which is also called the cogitative, whose task it is to draw forth non-sensed intentions, like friendship and enmity, from those sensibles. And by means of this power, the sheep judges the wolf to be his enemy [Trans. A. V.].)

Imagination preserves the forms (*species*) of previous sense perceptions for future utilization. Phantasy is an operation of combining different forms or mental representations that can result in imaginary representations. Phantasy is activated by sensory forms in a power that is activated by the external senses. In the scheme of the *Parvulus philosophiae naturalis,* phantasy then uses the forms present in the common sense or stored in the retentive imagination. The estimative/cogitative power is activated by *intentiones*, which are forms we cannot perceive by means of our external sensory apparatus, for example "hostility". *Intentiones* are drawn from (*ex*) the "sensible", according to the author – but there is no noun: a sense "object" (more usual), or a sense "representation"? The example of the sheep and wolf indicates that the author of the *Parvulus philosophiae naturalis* is thinking about a form of incidental perception. The cited sheep-and-wolf example should not make us think that this account is uniquely about non-human animal perception. On the contrary, the example makes it clear that this process of incidental perception is an operation carried out by both animals and humans, because both have a sensorial apparatus. The words used in the manual to describe the process of incidental

21 Aristoteles, *De anima* III, 3, 429a1.

22 Cf. Albertus de Orlamünde, *Summa naturalium*, recension A (ed. Geyer), V.vi, 55*.

23 ovis] omnis, "Parvulus philosophiae naturalis", ed. Dumała.

24 Avicenna, *Liber de anima* I. 5 (Van Riet, p. 89).

25 Petrus de Dresda, *Parvulus philosophiae naturalis*, Dumała, "Parvulus philosophiae naturalis", p. 292, l. 131–342.

perception are "elicere" and "iudicare". Although the *Parvulus philosophiae naturalis* says nothing about the nature of this process in non-human animals, it was usually understood in the late Middle Ages as a low-level, non-predicative judgement. It is therefore close to "intuitive" or "automatic"[26].

The *Parvulus philosophiae naturalis* remains imprecise about many elements involved in cogitation – a major drawback of conciseness. For that very reason, the teaching masters working with this manual had to unpack it with a more elaborate treatment.

2. Anonymous Master Explaining the *Parvulus philosophiae naturalis*

Several explanations of the *Parvulus philosophiae naturalis* have been written, mostly by anonymous masters[27]. This form of explanation (*expositio*) has its origin in classroom teaching. The *expositio* that concerns us here opens with the words *Gloriosus peripatheticorum dux philosophorumque iubar Arestotiles radicatus*. It is found in 8 manuscripts written in Cologne and Leipzig (with variations)[28]. The level of impreciseness brings it close to a copied *reportatum* (notes of a student). The lecturer (author) has not yet been identified, but was most probably a young master at the University of Cologne, charged with lecturing on the *Parvulus philosophiae naturalis*, *terminus ante quem* 1487. We shall call him here Anonymous Master. Three of these copies belong to the same redaction, and will provide the quotations of this contribution. The other copies are closely related but show some variations – further research is needed to establish whether these form a second coherent group corresponding to another, revised, teaching.

B = MS Berlin, Staatsbibliothek, lat. fol. 40, fols 3r–34v (*expositio*), and 35r–54v (*quaestiones*), is dated in 1487–1488.
B2 = MS Berlin, Staatsbibliothek, theol. fol. 247, fols 62r–90v (*quaestiones*), 90v–106v (*expositio*), is written by the hand of John Parsow, who was registered as a student at the University of Cologne during the same period.
W = MS Würzburg, Universitätsbibliothek, M. Ch. F. 118, fols 15r–19v (*quaestiones*), 28v–34v (*expositio* and *quaestiones*), belongs to this text-group, and was logically

26 A. Oelze, *Animal Rationality: Later Medieval Theories 1250–1350. Investigating Medieval Philosophy*, Leiden / Boston, Brill, 2018, part III.

27 Many commentaries have been written on the compendium and, while most remain anonymous, some have been identified: Johannes Peyligk (Leipzig, Lotter, 1499); Bartholomaeus Arnoldi de Usingen (Leipzig, Stöckel, 1499); Iohannes de Stobnica (Basel, 1516); Magnus Hundt, *Introductorium in Aristotelis physica, Parvulus philosophiae naturalis vulgariter appellatum cum propria non extranea declaratione*, Leipzig, Stöckel, 1500.

28 MS Berlin, Staatsbibliothek, theol. fol. 247; Berlin, Staatsbibliothek , lat. fol. 40; MS München, Bayerische Staatsbibliothek, clm 8401; MS Würzburg, Universitätsbibliothek, M. ch. fol. 118; MS Würzburg, Universitätsbibliothek, M. ch. fol. 297; MS Vatican, BAV, Pal. lat. 1055; MS Norrköping, Stadsbiblioteket, 426 fol.; MS Tübingen, Universitätsbiliothek, Mc 335.

produced in the same educational circumstances, in the late fifteenth century in Cologne, dated 1493 on fol. 191r.

All of these manuscripts, like many student books, are compilations of several arts faculty texts, usually written during the time frame of a student's career, commonly about six years. Hence it is not unusual to find texts with different dates in the same manuscript.

For didactic purposes, the Anonymous Master interprets the concise text and follows up with an interpretation in the *modus quaestionum*. The *quaestiones* are usually answered according to the doctrine of the school. We will see below in §4, how his explanation about the imagination, is closely related to the regent's position, Lambertus de Monte. Furthermore, the *expositio* of the Anonymous Master is interesting, because the manuscripts feature folio-size pen-drawn diagrams of the powers of the soul[29]. Although the pen drawings were not originally developed for this particular method of teaching, they were annotated and adapted to the new *expositio*. As I have published already on the diagrams of the powers of the soul in general[30], and on those in W in particular, I refer to this publication for further reference[31].

The *Parvulus philosophiae naturalis* mentions phantasy as a third power, but our Anonymous Master says that this power is called by different names: some say formative power, others phantasy, or cogitative, or estimative, and Thomas Aquinas calls it particular reason. All of these names indicate the power's different functions[32]. Our Anonymous Master first defines the cogitative power in part as a formative act, i.e. combining forms into new representations, like the famous "golden mountain"[33]. The Anonymous Master then determines, concerning the fact that others (presumably Thomas Aquinas) mention that phantasy and imagination

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29 Comparable diagrams appear also in the following manuscripts: MS Berlin, Staatsbibliothek, Theol. fol. 247, MS Vatican, BAV, Pal. lat. 1055, MS Norrköping, Stadsbiblioteket, 426 fol., Leipzig, Universitätsbibliothek, B fragm. Lat. 242, Tübingen, Universitätsbibliothek, Mc 335. Additionally, I know of one drawing pasted in an incunable: MS Ljubljana, Narodna in univerzitetna knjižnica, Ti. 468 (Cologne, Heinrich Quentell, Hain 11585).

30 For more details about the history of the image, see A. R. Verboon, "Brain ventricle diagrams: A century after Walther Sudhoff new manuscript sources from the XVth century", in *Sudhoffs Archiv*, 98–2 (2014), p. 212–233.

31 A. R. Verboon, "Transmitting school-philosophy: Thomistic commitments regarding sense perception in a fifteenth-century Cologne student manuscript", in N. Eichenberger, E. C. Lutz, C. Putzo (eds.), *Bücher und Identitäten. Literarische Reproduktionskulturen der Vormoderne. Überstorfer Colloquium 2016*, Fribourg, Reichert, 2020, p. 169–200

32 W 32ra: "FORMATIVA POTENTIA EST. Tertio determinat de tertio sensu interiori, scilicet virtute cogitativa, cuius plura sunt nomina. Dicitur enim primo potentia formativa, secundo solet etiam dici fantasia, tertio dicitur cogitativa, quarto vero estimativa. Secundum doctorem sanctum dicitur esse ratio particularis quia est collativa intentionum particularium. Solet esse dici intellectus passivus. Et hec nomina que nominant virtutem cogitativam (Virtute cogitative *B*) secundum diversa eius officia. Determinando igitur de virtute cogitativa."

33 W 32ra: "Primo diffinit eam inquantum potentia (potentia *om. B*) formativa – dicens formativa potentia est potentia componens speciem sensatam cum alia speciebus sensata et sic facit mirabilia entia ut chimeram, hircocervum, aureum montem in Arabia, etceteris, componit enim (tunc *add. B*) speciem aurei cum species montis."

are exchangeable terms[34], that phantasy is also called formative power. However: if "phantasy is a motion from the actual sensing", meaning that phantasy is caused by sensible forms diffused from the imagination to the cognitive power, then phantasy is *caused* by this movement, but is not the same entity as imagination. As such, the formative operation, or phantasizing, is not a substantially distinct power, but merely an operation, and more specifically an act of the cogitative power, according to the Anonymous Master:

> [2] De modo ibi QUE AB ALIIS VOCATUR[35] fantasia[36]. Ponit diffinitionem virtutis ymaginative inquantum fantasia dicens formativa potentia solet etiam vocari fantasia. Et "fantasia est motus factus a sensu" id est "fantasia causatur ex motu et diffusione speciei sensibilis ex una potentia reservativa, ad aliam, scilicet cognitivam, etcetera", utque in textu. Et fantasia non diffinitur hic pro potentia principaliter sed pro actu fantasiandi, ex quo acto devenire possumus in cognicionem[37] potentia. Praeterea dicta divisio est causalis et non ydemptica, quia fantasiari fit per hoc, quod species sensibiles diffunduntur de potentia reservativa in cognitivam[38].
>
> ([Secondly] About [the section] WHAT OTHERS CALL PHANTASY. It gives the definition of the power of imagination in so far as phantasy, when mentioning that the formative power used to be called phantasy. And "phantasy is motion from sense"[39], meaning that "phantasy is caused by the motion and by the diffusion of sensible forms from a preservative power towards another, i.e. the cognitive, etcetera", like [mentioned] in the text[40]. And phantasy is not taken here primarily as the power, but for the act of phantasizing, from which [i.e. the knowledge of the act] we can come to know in potency. The aforementioned division is causal, and not identical, because phantasizing is done by that which sensible forms are diffused from: the preservative power into the cognitive [Trans. A. V.].)

Thirdly, he determines that the estimative or cogitative power is responsible for drawing out non-sensorial intentions – these are in the mental representation, but

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34 According to Aquinas's text (*Summa Theologiae*, I, quest. 78, art. 4 co), "[…] phantasia, sive imaginatio, quae idem sunt […]". Cf. J. A. Tellkamp, *Sinne, Gegenstände und Sensibilia. Zur Wahrnehmungslehre des Thomas von Aquin*, Leiden / Boston / Köln, Brill, 1999, p. 254.

35 The text of the *expositio* is typographically clearly organized with bold capitals to indicate the cross-reference to the *Parvulus philosophiae naturalis*, so that the reader is alerted as to where the Anonymous Master starts his comments and determination, and in which section of the underlying text.

36 fantasia *om. W.*

37 cognicione *B2.*

38 W 32ra.

39 Aristoteles, *De anima* III, 3, 429a1.

40 It is not quite clear what text is meant. The *Parvulus philosophiae naturalis* reads "Diffinitur tamen sic, fantasia est motus factus a sensu moto a sensibus que sunt extra. Unde fantasia dicitur apparitio sive visio." And in Thomas Aquinas one reads, *In libros Physicorum*, 8, lectio 6.5: "[…] phantasia est quidam motus sensitivae partis (sc. animae) factus a sensu secundum actum (sive in actu)." (Cf.: *Summa Theologiae* I, quest. 12, art. 3, arg. 3; quest. 84 art. 6 ad 2; quest. 111, art. 3 arg. 1; *De anima*, 2, lectio 4, n. 4; 3, lectio 6, n. 5.)

not directly accessible, as for example hostility, friendliness, harmfulness or usefulness[41]. According to the Anonymous Master, the non-sensorial intention is conveyed *in* a form (*intentum in specie*) but not directly *represented by* the form (*tamen non est representatum per speciem*). These intentions are already in the form previously sensed by the common sense. How does the cogitation have access to non-sensorial intentions; how can it draw out concepts like "friendship" from qualities, like colour, sound, or shape? The master gives the following example: if one sees someone with an unsheathed sword, the forms diffused from this sense object to the external senses are his colour, size, movement etc. These are the sense data of proper sensibles and common sensibles, perceived by the common sense. The cogitative power now, according to the Anonymous Master, extracts some *new form*, or *new content* from the previously sensed sensibles – allowing the cogitation to infer that someone wants to attack. "New form" or "new content" (*nova species vel aliquid contentum*) is quite unspecific. He might mean a new non-sensible content, because the author wants to explain how we, on the basis of the sense perception of someone with an unsheathed sword – a composition of colour, size, movement – can extract that someone wants to attack. By a similar operation the sheep grasps first the wolf, by means of sensible form of colour, size etc., and on the basis of these forms it extracts (*extrahere*) the form of dangerousness[42]. The master concludes this section by noting that the cogitative power forms a single power. If others use different names, then that is because they refer to the different functions of this power, not because all of these different functions are distinct entities. According to the master, this proves that phantasy and cogitation are two operations of one power, because the tasks attributed to phantasy require a cogitative power[43].

The Anonymous Master commenting on the *Parvulus philosophiae naturalis* then adds a question upon which one can expect him to elaborate in order to justify his choice: "What is the object of the cogitative power and what is its organ[44]?" He

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41 W 32ra–b: "De modo ibi ESTIMATIVA QUE ETIAM. Tertio notificat // 32rb virtutem cogitativam inquantum estimativam vel etiam cogitativam dicens quod 'est virtus cuius officium est elicere et extrahere intentiones non sensatas ex sensatis'. Hoc est aliquod intentum in specie, quod tamen non est representatum per speciem, cum illo quod est prius representatum in sensibus interioribus, ut, verbi gratia, intentiones amicitie vel inimicitie, nocivi vel utilis, quia intentiones elici possunt ex aliquibus speciebus prius sensatis, sic sunt si videtur aliquis cum gladio evaginato tunc species ab eo diffuse in visu presentaret eius calorem, magnitudinem, motum, etcetera. Similiter sunt in sensu communi. Sed in virtute cogitativa ex istis iam sensatis elicitur nova species vel aliquid contentum aliqua specie, quod nondum est representatum, cuiusmodi est inimicitia et invasio, quia ex motu suo elicitur quod velit aliquem invadere. Et hoc facit virtus cogitativa. Et per illam virtute ovis iudicat lupum esse inimicum sue nature, quia per speciem lupi primo cognoscit lupum secundum eius colorem, magnitudinum, motum, et cetera. Ex quibus elicit speciem inimicitie et contrarietatis, quae tunc fugit."

42 See note above.

43 W 32rb: "Ex iste igitur patet quod virtus cogitativa est una potentia numero, habens divisa officia inquantum formativa (fantasmata *W*), inquantum fantasia, inquantum estimativa et inquantum cogitativa. (Ex quo patet secundo quod fantasia non est potentia distincta a cogitativa quia officia que attribuntur fantasie conveniuntur virtuti cogitative *add. B*)." Cf. note 26: W 32ra.

44 W 32rb, B 53rb–54va, B2 110rb–110va: "QUERITUR QUID SIT OBIECTUM virtutis cogitative et eius organum? Dicendum quod obiectum est sensibile per accidens, id est substantia particularis in quantum

starts his answer by addressing incidental perception: cogitation grasps the accidental qualities of the sensible object (*sensibile per accidens*). By means of those forms that were already in the senses (*species que prefuerunt in aliis sensibus*), the substance of the particular thing – as opposed to the universal (*substantia rei quod est particularis*) – is drawn out by the cogitative power; like the substantial form of *this* wolf includes fear. Thus, different powers have different objects: vision is for colour, as common sense is for common sensibles like size, and as the cogitative power is for particular substances. The other operation of the cogitative power is to phantasize. Phantasy however should be understood in twofold ways:

a) one way is according to the act of phantasizing, or the act of the inner senses, and that is how it is understood in the text (*uno modo pro actu fantasiandi, vel pro actu sensuum interiorum et sic diffinitur in textu*). Here phantasy should be understood as a generic concept comprising all the senses operating on phantasms[45].

b) the other way is according to the estimative or cogitative power, and in that way phantasy is nothing other than the estimative or cogitative power itself (*alio modo pro potentia que dicitur estimativa et sic est potentia anime non autem distincta a cogitativa vel estimativa*). Moreover, the Master continues, this shows that the cogitative power is said to be "formative" when it composes monsters, and it is considered to be phantasy when judging forms or phantasms of the inner senses (*Ex quo patet quod virtus cogitativa dicitur formativa inquantum componit monstra, sed dicitur fantasia inquantum iudicat species vel fantasmata sensuum interiorum*).

In summary, the cogitative power has: 1. an operation of grasping intentions, and 2. phantasy as a formative operation, i.e. composing unreal representations.

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cognoscibilis. Quia per sensus exteriores ut per visum cognoscitur color rei ; per sensum communem ut magnitudo, motus, etcetera ; per virtutem cogitativam cognoscitur ipsa substantia rei que est particularis et hoc per easdem species que prefuerunt in aliis sensibus. Sed ipsius organum est situatus in cacumine capitis ubi cerebrum est humidum, quia virtus cogitativa est altior sensus qui etiam est propinquior intellectui, ratione cuius dicitur ratio particularis vel intellectus passivus. ARGUITUR fantasia est actus, ergo non est potentia. Antecedens est quia 'fantasia est motus factus etcetera'. Dicendum quod fantasia accipitur dupliciter: uno modo pro actu fantasiandi, vel pro actu sensuum interiorum et sic diffinitur in textu. Alio modo pro potentia que dicitur estimativa et sic est potentia anime non autem distincta a cogitativa vel estimativa. Ex quo patet quod virtus cogitativa dicitur formativa inquantum componit monstra, sed dicitur fantasia inquantum iudicat species vel fantasmata sensuum interiorum. Estimativa vero dicitur possunt reperire in brutis. Cogitativa autem dicitur possunt reperire in hominibus. Solet etiam dici ratio particularis vel intellectus passivus et hoc inquantum est collativa intentionum particularium."

45 Anthony Lisska discusses at length Thomas's position about phantasy in relation to the common sense, imagination, and the cogitative power. He basically adopts the account of a retentive and compositive (or creative) function in imagination – the latter coinciding with the operation of phantasy – as well as a more generic understanding of phantasy comprising all the senses operating on phantasms (*fantasmata*). Jörg Tellkamp claimed, long before Lisska, that phantasy can be understood in twofold ways. In the restrictive sense, phantasy is not a distinct power, but comprised under imagination. A. J. Lisska, *Aquinas's Theory of Perception. An Analytic Reconstruction*, Oxford, Oxford University Press, 2016; Tellkamp, *Sinne, Gegenstände und Sensibilia*.

In his determination about the number of inner senses, the Anonymous Master invokes not only Thomas Aquinas, but also the physicians that enumerate only four inner senses according to the four physical cavities. He explains that there might well be five names of the inner senses, but that in reality there are only four distinct entities (*distinctiones realiter et non vocalem*). The inner sense that has to be struck from the list according to this understanding is phantasy; phantasy is no distinct power, but is an operation of the power of imagination – as held by the authority of Thomas Aquinas. However, and here our teaching master alludes already to Lambertus de Monte: "Others have phantasy comprised under the cogitative power, because all the operations that Albertists attribute to phantasy fit the cogitative power, as will be clear[46]."

He is, however, not explicit about non-human animals not having the formative operation, nor clear about the reasons for attributing the formative power in human beings to the cogitative power.

3. Lambertus de Monte's *Copulata super tres libros De anima*

In his courses, the Anonymous Master used the Prague compendium as a stepping-stone to adapt the teachings in line with his own philosophical tradition. He relied thereby on the philosophical endeavours of the regent master of his faction, as this section will show. This section will also elaborate the local adaptation of the Thomist tradition on the concept of imagination.

Lambertus de Monte (c. 1430/35–1499) was master of arts and theology in a leading position at the *Bursa Montana* in Cologne by the end of the fifteenth century[47]. He is considered a defender of the Thomistic interpretation of Aristotle,

46 W 31rb, B2 98rb–99ra: "POTENTIE APPREHENSIVE DEINTUS SUNT QUINQUE SCILICET. De sensibus interioribus quatuor. Hic incipit determinare. Et primo praemittit unam divisionem et vult quod quinque sunt sensus interiores scilicet sensus communis, virtus ymaginativa, et fantasia, virtus cogitativa, et virtus memorativa. Arguitur: Quartuor (*sic*) sunt sensus interiores, ergo non quinque sensus. Antecedens, auctoritate doctoris in suis Passibus (*sic*). Autoritate (sic) etiam omnis medicorum qui ponunt quatuor sensus in capite secundum quod quatuor sunt ossa specialia capitis ut patet in capitibus mortuorum, ergo tamen quatuor sensus interiores. Dicendum quod sensus interiores possunt accipi dupliciter. Unomodo secundum quod sunt quinque sensus interiores quia ipsorum quinque sunt nomina. // 31va Et hanc divisionem ponit Avicenna in suo libro de anima quem insequitur Albertus et sui sequentes. Aliomodo accipiuntur sensus interiores distinctiones realiter et non vocalem et sic sunt tamen quatuor sensus interiores. Primus est sensus communis, secundus virtus ymaginativa, tertius virtus cogitativa, quartus virtus memorativa, ut dicit Doctor Sanctus in prima parte, similiter in questionibus *De potentia* et *Veritate*. Et Doctor Sanctus comprehendit fantasiam sub ymaginativa, illa reservat fantasmata. Alii autem comprehendunt eam sub virtute cogitativa, quia omnes operationes, quas Albertisste attribuunt fantasie, omnes conveniunt virtuti cogitative ut patebit. Patet ergo quod dicta divisio non est divisio rerum sed vocum quia datur per distincta nomina."

47 Lambertus de Monte: 1455–1477 master in the Arts faculty, 1473–1499 master in theology, in 1478/1479 rector, and during the period 1475–1497 three times dean of the theology faculty. E. Meuthen, *Kölner Universitätsgeschichte*, 3 vols, Köln, Böhlau, 1988, I, p. 182. On Lambertus de Monte, see for example: H. G. Senger, "Was geht Lambert von Heerenberg die Seligkeit des Aristoteles an?",

against that of Albert the Great. He wrote, amongst other works, the *Copulata super tres libros De Anima cum textu iuxta doctrinam excellentissimi doctoris sancti Thome de Aquino. Copulata* originated in classroom teaching. Lambertus de Monte has taught his ideas in Cologne, as testified by the *notata* of the *Copulata super De anima* surviving to our time[48]. It might have been compiled when Lambertus was a master in the arts faculty (1455–1477), or at a later stage of his career, as he was active until his death in 1499. It is a compilation condensing Aristotle's *De anima*, paraphrased and typographically highlighted, followed by an interpretation in the question-form, answered according to the doctrine of the school[49]. According to the title page, Lambertus's *Copulata* offer an interpretation of *De anima* following the doctrine of Thomas Aquinas, thus systematizing and codifying Aquinas's corpus in one annotated document[50]. In his turn, Lambertus's writings were codified after his time by his followers, in the so-called *Processus Lamberti de Monte*[51]. Many texts of the *copulata*-genre were published from the 1480s onwards as schoolbooks in the "school press" of Cologne by Heinrich Quentell, and this is also the case for Lambertus de Monte's *Copulata super libros de anima.* The *Copulata* were first published in 1485[52]. The fact that seven editions survived in print, as well as many manuscript copies, indicates how widespread and commonly used the text was. For this paper I employed quotations of the Copulata-text from the Quentell edition (c. 1492), and I have compared this edition with the Welker edition (c. 1486) and manuscript W, and can confirm that the text is similar[53].

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in A. Zimmermann (ed.), *Studien zur mittelalterlichen Geistesgeschichte und ihren Quellen*, Berlin, De Gruyter, 1982, p. 293–311; S. Negri, "La quaestio 'De salvatione Aristotelis' del Tomista Lamberto di Monte", in A. Palazzo (ed.), *L'antichità classica nel pensiero medievale: atti del convegno della Società Italiana per lo Studio del Pensiero Medievale (S.I.S.P.M.) Trento, 27–29 settembre 2010*, Turnhout, Brepols, 2011, p. 413–440; S. Negri, "The Traps of Realism. The Debate over Universals in the Fifteenth Century and the Thomists of Cologne", in *Recherches de Théologie et Philosophie Médiévales*, 79–1 (2012), p. 231–265; O. Weijers, "Le pouvoir d'imagination chez les philosophes néerlandais du XVe siècle", in M. Fattori, M. Bianchi (eds.), *Phantasia-Imaginatio. V Colloquio Internazionale del Lessico Intellettuale Europeo*, Roma, Edizioni dell' Ateneo, 1988, p. 205–220; H. J. M. J. Goris, "Thomism in fifteenth-century Germany", in P. van Geest, H. Goris, C. Leget (eds.), *Aquinas as authority*, Leuven, Peeters, 2002; M. J. F. M. Hoenen, "Nominalism in Cologne: the student notebook of the dominican Servatius Fanckel with an edition of a *disputatio vacantialis* held on July 14, 1480 'Utrum in Deo uno simplicissimo sit trium personarum realis distinctio'", in S. E. Young (ed.), *Crossing Boundaries at Medieval Universities*, Leiden / Boston, Brill, 2011, p. 85–144.

48 For example: MS Berlin, Staatsbibliothek, theol. fol. 247, item 3, according to V. Rose, *Die Handschriften-verzeichnisse der königlichen Bibliothek zu Berlin. Verzeichnis der lateinischen Handschriften,* II. Iii, Berlin, A. Asher & co, 1905, p. 1247–1250.

49 E. Meuthen, "Die Artesfakultät der alten Kölner Universität", in A. Zimmermann (ed.), *Die Kölner Universität im Mittelalter. Geistige Wurzeln und soziale Wirklichkeit*, Berlin, De Gruyter, 1989, p. 366–393, here p. 388–389; Meuthen, *Kölner Universitätsgeschichte*, p. 182–186.

50 Lambertus de Monte also included large parts of the earlier Cologne Thomists Henry of Gorcum (c. 1378–1431) and his uncle Gerard of Cologne (de Monte) (c. 1400–1480), according to Goris, "Thomism", p. 16–17, 20.

51 Goris, "Thomism", p. 19.

52 The *Copulata super libros de anima* were published seven times between 1485–1498 (Hain 11582–11584, 1713).

53 I use the following abbreviations: ed. Q = [Cologne, Heinrich Quentell], c. 1492. Darmstadt, inc. III 85 (accessible from: http://tudigit.ulb.tu-darmstadt.de/show/inc-iii-85/); ed. W = [Cologne, Conradus

As both Lambertus de Monte and the Anonymous Master seem to share the same interpretation, could they in fact be the same person? The *expositio* is less detailed (e.g. about the possibility of phantasy using incidental perceptions), but this can be explained as the manuscript being the result of student notes. There are, however, two reasons to assume that Lambertus de Monte does not coincide with the Anonymous Master. Firstly, Lambertus was regent master of the *Bursa Montana* from 1475, which is an important job, and incompatible with the work of commentary on a simple manual intended for freshmen studies. Secondly, in the exposition of the *Parvulus philosophiae naturalis* the author refers to "alii autem comprehendunt eam [fantasiam] sub virtute cogitative". The use of the third person plural would be awkward, if the author refers to his own teachings. However, although identification is not likely, it cannot be ruled out in this phase of research.

Lambertus de Monte largely follows Thomas Aquinas in his assessment of the four faculties. It is generally known that Thomas also denies the formative operation of a distinct entity, and combines it with the imagination – but only in the case of human beings[54]. Non-human animals have no power to combine new images, according to Thomas Aquinas. All they can do is reproduce existing representations as stored in the imagination. Non-human animals grasp intentions only naturally (instinctively)[55], whereas human animals grasp them by means of comparison (*collatio*). Once human beings have made an unreal representation in the imagination, it can be evaluated by the cogitative power, according to Thomas. The cogitative power benefits from a perfusion by a sort of reflux (*refluentia*) of the intellect[56]. Animals have no intellect, and thus no reflux of it in their highest sensory power. To make this distinction clear, the third inner sense is called cogitative power in humans, and called estimative power in the case of non-human animals.

Lambertus adheres to the same scheme: the common sense does not permit the preservation of sense images. Therefore, there is another, retentive faculty needed, called imagination. The higher animals, however, have yet another operation, and that is grasping (*elicere*) intentions (meanings) that are not directly sensed on the basis of sensible things – therefore this operation cannot be reduced to the aforementioned powers, which only provide raw sense data of colours and smells and size and the like. This faculty is called estimative power in animals, and the cogitative power in human beings. They operate on one and the same form, but the faculties have different names because the cogitative power of human beings operates on a higher level, thanks to the intellect that is joined to it (*coniunctionem intel-*

Welker de Bopardia], 1486. Darmstadt, inc. III 86 (accessible from: http://tudigit.ulb.tu-darmstadt.de/show/inc-iii-86/); W = MS Würzburg, Universitätsbibliothek, M. Ch. F. 118, fols 84r–140v.

54 Thomas Aquinas, *Summa Theologiae*, I, quest. 78, art. 4 co.: "Avicenna vero ponit quintam potentiam, mediam inter aestimativam et imaginativam, quae componit et dividit formas imaginatas; ut patet cum ex forma imaginata auri et forma imaginata montis componimus unam formam montis aurei, quem nunquam vidimus. Sed ista operatio non apparet in aliis animalibus ab homine, in quo ad hoc sufficit virtus imaginativa." Cf.: *Summa Theologiae*, I, quest. 12 art. 9 ad 2, *De Veritate*, quest. 8 art. 5 co.; *De Veritate*, quest. 8 art. 9 co., etc.).

55 Thomas Aquinas, *Summa Theologiae* I, quest. 78 art. 4 co.

56 Thomas Aquinas, *Summa Theologiae* I, quest. 78, art. 4, ad 5.; II, quest. 3, art. 3 co.

lectus). Lambertus de Monte speaks of "ex redundantia rationis" – an "overflowing of the intellect" to the cogitative power (see [3]), that seems to be in accord with Aquinas's "refluentia". As the images of the intentions need to be preserved, we have to postulate a memory, as a fourth sensory power.

Lambertus deals in detail with the operations of phantasy in the question of whether phantasy is a distinct power (*Quaeritur utrum fantasia sit una potentia ab aliis distincta*?)[57]. It is argued in the text that those who think that phantasy is a distinct power base themselves on Aristotle, who makes a special mention of phantasy. They argue that phantasy does something different than the other senses, namely composing new forms, and therefore it should be a different power. Lambertus de Monte, however, argues that Aristotle meant that phantasy is an *act*, not a distinct *power*, when he writes that phantasy is a movement being caused by a sense according to its act. Instead, Lambertus argues in the same question that:

> [3] Dicendum quod illa operatio reducitur ad virtutem cogitativam. Et hoc sic patet quia tales operationes non fiunt in omnibus animalibus, sed solum in hominibus. Si enim fierent in omnibus aliis animalibus, cum fantasia fit principium motus, sequeretur quod animalia indeterminate moverentur propter compositionem fantasticam quae haberent de rebus. Non enim possunt hoc iudicare esse fantasma sicut contingit in hominibus et ideo secundum talem compositamfantasiam moverentur et per consequens indeterminate fiunt, ergo iste operationes per virtutem cogitativam inquantum cogitativa quod dicitur notanter quia sic in ea est redundantia rationis. Et propter talem redundantiam habet altiorem operationem quam estimativa in brutis[58].
>
> (It is said that this operation is reduced to the cogitative power. And this is clear, because those operations are not performed by all animals, but only by human beings. If they truly would be performed by all animals, with phantasy being the origin of the motion, then it would follow that all animals would be moved indeterminately according to the phantasy-composition that they would have of the things. They cannot, however, judge this to be a phantasy, as it happens in human beings, and therefore they would be moved according to such a phantasy-composition, and consequently indeterminately so. Therefore, these operations are [performed] by the cogitative power, in so far as it is cogitative, because it is said notably that in it [i.e. this power] is the overflow of reason. And on account of such an overflow, it has a higher operation than the estimative [power] in brutes [Trans. A. V.].)

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57 Lambertus de Monte, *Copulata super libros de anima*, [Cologne, Quentell], c. 1492. book II, fol. liii ra [I6r]: "Queritur utrum fantasia sit una potentia ab aliis distincta? Dicendum quod non. Arguitur quod sic, quia Arestoteles postea determinat de fantasia ergo debet poni specialis sensus. Dicendum quod Arestoteles ponit fantasiam ut est actus sensuum interiorum, quia dicit quod est motus factus a sensu secundum actum. Arguitur: est una operatio in animalibus que non convenit alicui predictorum saensuum scilicet componere speciem cum specie et intentionem cum specie ergo erit una nova potentia scilicet fantasia."

58 Lambertus de Monte, *Copulata super libros de anima*, [Cologne, Quentell], c. 1492, book II, fol. liii ra [I6r]. This is the rest of the question mentioned above in note 59.

Two statements surface in this question:

1) Non-human animals have only the capacity to replicate sense images, not to create new ones (cf. Thomas Aquinas, *Summa Theologiae*, I, quest. 78, art. 4), because they would behave funny otherwise.

2) The power to produce unreal images is present in the *cogitative power* in the case of human beings, because animals cannot imagine fictious things.

Let us first look into the arguments for denying animals the ability to represent golden mountains. Lambertus de Monte's argument can be summarized as follows: if animals were able to compose non-existing phantasms, like monsters, or any other unreal representation, then they would behave very awkwardly, because they are not capable of telling the difference between reality and non-real composed images. Animals behave according to the phantasms they have, of sense images and intentions – this accords with Aristotle's dictum that "animals behave according to phantasy". At the core of this belief lies the idea that animals act according to coherent patterns. Animals behave more or less predictably, and in coherence with the preservation of their species. Animals are therefore not capable of imagining golden mountains. Human beings, on the other hand, have the reasoning ability to judge between representations corresponding to reality and non-reality. Because of the close connection of reason with the cogitative power, human beings understand that this monster is only a product of our creative power, and that we do not have to run away when we think about it.

All sensitive beings act according to their most sophisticated phantasms[59]. For human animals, the most sophisticated phantasm is the recognition of an individual as a member of a natural kind, for example grasping "Socrates" as a "human being". The grasp of the particular substance is here enriched with universal essences grasped by the intellect. The enrichment of the cogitative power is effectuated by an overflowing (*redundantia*) of the intellect. The highest intention non-human animals can grasp, according to Lambert, are particular essences/substances.

How should we understand this? A part of the argument involved in answering the question about what forms and *intentiones* are (*Quaeritur quid sit species et quid intentio*) becomes useful here:

> [4] Arguitur virtus estimativa non cognoscit substantiam particularem ergo tercia operatio non est bene posita. Dicendum quod substantia particularis dupliciter cognoscitur. Uno modo absolute et secundum se et secundum suam naturam particularem et sic cognoscitur solum per virtutem cogitativam in hominibus. Alio modo accipitur substantia particularis in ordine ad actionem vel passionem et sic etiam brutus cognoscit substantiam particularem per virtutem estimativam, sic

59 Lambertus de Monte, *Copulata super libros de anima*, [Cologne, Quentell, c. 1492], book II, fol. lii ra: "Arestoteles (*sic*) dicit quod animalia multum operantur secundum fantasiam, fantasia autem determinata principaliter est actus virtutis cogitative seu estimative."

> enim ovis cognoscit lupum non secundum se et absolute, sed secundum quod conatur inferre incommodum ovi et ideo etiam quarta actio convenit virtuti cogitative in homine et non virtuti estimative in brutis[60].
>
> (It is argued that the estimative power does not cognise the particular substance, therefore the third operation is not well situated. It must be said that the particular substance is cognised in two ways: one way is absolute and according to itself, and according to its particular nature, and in that manner it is known only by the cogitative power in human beings. In the other way, the particular substance is conceived of in relation to an action or passion, and in that manner, even a brute knows a particular substance by means of the estimative power. In this way, the sheep cognises the wolf not in itself and absolutely, but according to the discomfort for sheep it tries to inflict, and therefore the fourth action suits the cogitative power in human beings, but not the estimative power in brutes [Trans. A. V.].)

According to Lambertus, we know particular essences in two ways. The first is to understand that a particular essence is absolute and in itself (*per se*). The second way is to understand particular essences in terms of an incitement to action. Sheep do not have access to the essence of a (particular) wolf in an absolute and *per se* way, but they are capable of some inferences and can grasp the wolf's hostile nature, translating this grasp into action (e.g. fleeing). This grasp comes only accidentally to sheep.

Animals only have an indirect and incomplete grasp, or vague notion of the essence, just enough to encourage the non-human animal to react on the passion – a feeling of pleasure (concupiscence) or displeasure (irascibility), it provokes. They are programmed to behave according to the phantasms they have, of sense images and intentions. The instinctive evaluation of non-human animals is not elaborate enough to make a judgement in terms of veracity. They are programmed to behave according to the phantasms they have, of sense images and intentions, in regular and coherent patterns. The other action is only present in human beings: to recognize an individual as a member of a natural kind, for example grasping "Socrates" as a "human being". The grasp of the particular substance is here enriched with universal essences grasped by the intellect.

Now, what arguments does Lambertus bring forth in situating the human power to create unreal things in the cogitative power, rather than the imagination, thus separating what Aquinas had brought together? In quote one [3], Lambertus explains that the power to produce unreal images is subdued to the *cogitative power* in the case of human beings, *because* animals cannot imagine fictious things. This is not a sufficient reason to transfer phantasy from imagination to the cogitative power. Would a better understanding of how human beings deal with fictitious things and scenarios be helpful? We learn about this in an argument that surfaces in a section about how phantasy is different from sensation, imagination, *opinio* and

60 Lambertus de Monte, *Copulata super libros de anima* [Cologne, Quentell], c. 1492, book II, lii rb–lii va [I5r–I5v].

intellect. This section resembles Albert the Great, *De anima* 3.6 – but more study is needed to figure out how Lambertus articulates this relation. Anyhow, Lambertus's understanding of *opinio* comes close to the one of Albert the Great in the same text: "*Opinio* is a certain acceptation of reason through probabilities, but because it is uncertain, it is necessary that it be mixed with phantasy", and Albert continues, "for the simple conceptions of the intellect are not uncertain, but always true." *Opinio* is a reasoned belief operated in the sense power, more precisely in the cogitative power, as it turns out, but in any way it is not an intellectual truth. It comes close to our definition of opinion: a view or judgement formed about something, not necessarily based on fact or knowledge.

[5] Hic ponitur secunda ratio quare fantasia non est opinio et stat in hoc. Illae sunt diversae quae habent diversas conditiones sed opinio et fantasia habent diversas conditiones quia ad opinionem sequitur passio in appetitu, quia si aliquis opinetur aliquod terribile vel sperabile tunc statim spes vel timor, sic autem non est de fantasia quia si fantasiemur aliquod terribile tunc non timemus sed consideramus illae que fiunt secundum fantasiam ac si apparerent nobis in picturis. In picturis autem terribilium non terremur. […]

Ratio differentie posita in secunda ratione premissa inter opinionem et fantasiam est ista, quia appetitus non movetur ad simplicem apprehensionem rei[61], qualem significat fantasia, sed si appetitus debeat moveri oportet quod aliquid apprehendatur sub ratione boni vel mali. Hoc autem facit opinio, scilicet, componendo aliquid fantasiatum esse terribile vel sperabile et hoc ideo est quia per opinionem nos iudicamus aliquid ita esse sicut opinamur. Sed per fantasiam non iudicamus ita esse sicut fantasiamur, ergo fantasia non movet appetitum. Circa quod tantum sciendum est que in brutis ex fantasia sequitur passio in appetitum. Et hoc est ideo quia virtus estimativa operatur in eis, sicut opinio in hominibus. Et ideo quando fantasiantur bruta tunc non cognoscunt talem fantasiam esse fantasiam. Hoc autem fit in hominibus in quibus ratio iudicat fantasiam sensibilem esse fantasiam et sic non movetur secundum eam[62].

(Here is added the second reason why phantasy is not an opinion. It consists in this: those things are different which have different conditions. And opinion and phantasy have different conditions, because passion in the appetitive [power] follows from an opinion, since, if someone deems something terrible or hopeful, then [there is] instantly hope or fear. This, however, is not how it is with phantasy, because if we phantasize something terrible then we are not afraid, but consider those that are made according to phantasy; as if they appear to us in pictures. We are, however, not frightened by terrible things in pictures. […]

The explanation for the difference stated in the aforementioned second reason between opinion and phantasy is this: because the appetitive [power] is not mo-

61 Cf. Thomas Aquinas, *Summa Theologiae*, I, quest. 81, art. 1.

62 Lambertus de Monte, *Copulata super libros de anima*, [Cologne, Quentell], c. 1492, book II, fol. lv vb–lvi ra [Ki-vb–Kii-ra].

> ved to the simple apprehension of a thing, which characterizes phantasy, but, [the other way around] if the appetitive [power] is to be moved, it is necessary that something is apprehended on account of being good or bad. But this constitutes an opinion: composing some phantasy [and it] being terrible or hopeful, and this is the case because by means of opinion we judge something to be like what we opine it to be. But by phantasy we do not evaluate this to be like what we phantasize; therefore, phantasy does not move the appetitive [power]. So much must be understood, that, in brutes, from phantasy follows passion in the appetitive [power]. And this is the case because the estimative power is operated in them, like opinion in human beings. And therefore, when brutes phantasize, they do not cognize such a phantasy to be a phantasy. But human beings do, [because] in them reason judges what is being phantasized to be a phantasy, and is thus not moved by it [Trans. A. V.].)

This passage helps to understand why phantasy is subdued to the estimative/cogitative power: if animals (human and non-human) are reactive, that is necessarily the result of having a more complex apprehension of the phantasm, in terms of differentiating between harmfulness and benefice – a function of the estimative-cogitative power. This differentiating should be mechanical in animals, as Lambertus seems to think, because of their instinct according to their biological species. And therefore we should interpret the phrase ("And therefore, *when brutes phantasize*, they do not cognize such a phantasy to be a phantasy") in the generic way in which Aristotle intended us to understand the term phantasy, and not in the narrow sense of making fiction. When brutes have their animal-way of phantasizing, this *per accidens* way of grasping the wolf's hostility, they cannot "cognize such a phantasy to be a phantasy". They do not "judge something to be like what it opines it to be". From animal-phantasy follows passion in the appetitive [power][63]. From human-phantasy follows opinion, that is, a justified belief (not necessarily based on fact or knowledge), and then we react, or not.

Lambertus follows a philosophical strand but draws his own conclusions. Aristotle claims that the belief that something is terrible may frighten us, while the corresponding phantasm does not have the same effect because we consider it merely as a picture (*graphê*). So, Aristotle claims here that phantasms do not carry factual commitment (*De anima* 427b23–24) (although in other instances he contradicts himself)[64]. Thomas Aquinas and Albert the Great agreed with Aristotle on this point, as did Lambertus de Monte, but they all drew different conclusions: Thomas Aquinas placed compositive phantasy together with imagination, whereas Albert considered both as separate powers, and Lambertus defined it as act of the estimative/cogitative power.

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63 See note 61. Augustine says in *De Trinitate* XII [xii. 17] that "the soul's sensual movement, which extends to the body's sense, is common to us and to beasts". See R. Pasnau, *The treatise on human nature. Summa Theologiae Ia 75–89*, Indianapolis, IN, Hackett, 2002, p. 109.

64 See for references and discussion: D. Frede, "Aquinas on Phantasia", in D. Perler (ed.), *Ancient and Medieval Theories of Intentionality*, Leiden / Boston, Brill, 2001, p. 155–183.

Dorothea Frede gave an interesting explanation of the purpose of these non-committal fictious phantasms in Aquinas, that I want to repeat here[65]. Healthy human beings are aware, in Aquinas, that unreal composed phantasms are a product of their own imagination, according to Frede. If we make phantasms of golden mountains that is because we want to (for reasons of embellishing or dramatizing events), but these unreal phantasms have no real effect: "If I cook up some fearful phantasms I may remain quite unaffected by it, because I am aware that it is the product of my own imagination", Frede writes[66]. With the aid of a critical and "comparative viewing" of former and parallel impressions, we will quickly asses the image of a "golden mountain" and assure ourselves that we are only imagining[67]. Aquinas asserts with Aristotle, that the unreal impression is an important tool in assessing (future) situations, according to Frede. Phantasms have a role in explaining actions; they provide a conception of a potential future state of affairs, upon which we can judge whether it is desirable or not. As fictitious phantasms provide information upon which to base our decisions, they are an important cognitive source[68].

We can now see more easily why Lambertus transfers the only remaining human compositive phantasy to the cogitative power, which provides a so-called "particular reason" as a tool to form an opinion – a justified belief about the veracity of the fiction. Only if one can evaluate the fiction as fiction, it makes sense for her to have that capacity. Convinced that reasoned assessment follow on phantasy, Lambertus de Monte concluded that phantasy must be an operation of the estimative-cogitative power, instead of the power of imagination as in Aquinas. It is not entirely clear how much of this cogitative capacity depends on the intellect, but my feeling is that Lambertus attributes a more central role to the cogitative power and phantasy than Thomas Aquinas, because of the role of opinion in evaluating phantasms – "opinion" which, I recall, is a justified belief, and not a fact or knowledge flowing over from the intellect.

Lambertus de Monte must have realized that this is not the entire story, because human beings do sometimes err in their judgements of newly composed non-sense. Lambertus explains that the intellect can only be veiled *per accidens*, and not *per se*, which is a more often invoked solution. An intellectual impediment is caused by something that is joined to it: the inner senses, and in particular the cogitative power. The senses can be impeded *per se* by sickly and defective (*infirmitate*) passions (mainly love and hatred, Lambertus says) and sleep – these can pervert judgements[69]. In these two cases, there is no issue: the intellect is invoked to over-

65 Frede, "Aquinas on Phantasia", p. 164.

66 Frede, "Aquinas on Phantasia".

67 Frede, "Aquinas on Phantasia", p. 166–167.

68 Frede, "Aquinas on Phantasia", p. 165 (cf. *De anima*, 644, 669, 778).

69 Lambertus de Monte, *Copulata super libros de anima*, [Cologne: Quentell], c. 1492, book II, fol. lvi va–b [Kiii–vab]: "Queritur utrum intellectus posset velari per infirmitatem passionem aut somnum? Dicendum quod sic quia intellectum velari est ipsum impediri in suo iudicio. Sicut homo dicitur velari oculis quando impeditur iudicium visus de visibillibus, quia ergo contingit intellectum impediri ex passione infirmitate vel somno. Ideo intellectus dicitur ex eis velari. Arguitur: materiale non potest agere in immateriale, sed egritudo sive passio aliqua respicit aliquod corporale, ergo non potest impedire

flow the senses to produce a good judgement, but is defeated. These, however, are temporary flaws of weak human beings, not anything like a systematic flaw in the machinery. Healthy human beings are aware that unreal phantasms are the product of their own imagination, and this operation takes place in the cogitative power where the intellect can exercise its influence.

4. Conclusions

The Prague compendium *Parvulus philosophiae naturalis,* written around 1400, was a true bestseller. It was widely used as a philosophy textbook for young students all over Central and Eastern Europe for almost a century by masters teaching in different philosophical traditions. Study of the reception of the *Parvulus philosophiae naturalis* contributes to a better understanding of teaching practices at the universities in general, as well as the "(dis)continuity" of philosophical viewpoints among several generations of teachers, and the discrepancies between the different philosophical traditions, as taught in the schools of the different universities.

This paper examines the reception of the *Parvulus philosophiae naturalis* at the University of Cologne around 1490. The *Parvulus philosophiae naturalis* provided an Albertist perspective on the internal senses, and it was used here as a work to be unpacked and corrected according to a Thomist commitment. Central to the argument of this paper are the teachings of an Anonymous Cologne Master who, on the one hand, uses the *Parvulus philosophiae naturalis* to teach the basics. On the other hand, there is the work of a local authority, the regent master Lambertus de Monte, who elaborates on and corrects the standpoints from the Prague compendium to align with and complete a Thomist viewpoint.

An analysis of the concept of imagination, a generally known point of contention between Albert the Great and Thomas Aquinas, however, was not as orthodox as has been assumed. Indeed, the Prague compendium formed the departure point for teaching, sometimes not so much as a simple cue, in order to elaborate more extensively on acute local questions and developments. The Anonymous Master borrowed from Lambertus de Monte the idea that there was a problem in Thomas Aquinas's readings of the *De anima*. He uses Lambertus de Monte's explanation of the issue of why non-human animals cannot imagine unreal things (*Summa Theologiae*, I, quest. 78, art. 4), offering an explanation where Aquinas gives none. Lambertus's suggestion consists in arguing that non-human animals have no intellect with which to correct unreal representations; if they were imagining unreal things,

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intellectum qui est immaterialis. Dicendum quod aliquid dicitur impediri dupliciter. Unomodo per se quia, scilicet, impedimentum intrinsece tangit illam rem que impeditur et sic intellectus non potest impediri per aliquod materiale ut probat argumentum. Aliomodo aliquid impeditur per accidens, quia, scilicet, fit impedimentum in illo quod alteri coniungitur sine quo eius operatio esse non potest. Et sic impeditur intellectus ex impedimento sensus, quia necesse est intellectum operari per virtutes sensitivas. Sensus autem impediuntur per se ex passione infirmitate et somno. Et hoc est quod solet dici quod amor et odium pervertunt iudicium, quia tales passiones trahunt ad se iudicium rationis."

then they would behave in unnatural and unexpected ways, which would harm the continuation of their biological species, but this is clearly not the case.

Moreover, in order to preserve the same power of imagination for all sensorial beings, the operation of imagining unreal things is considered to belong to the cogitative power, which is different from the estimative power of non-human animals. The estimative power's capacities are hard-wired in the materiality of the animal's middle brain cell – animals are surely not programmed for all possible unrealistic scenarios. Even if a non-human animal would be able to imagine a monster, then it would not know how to react to it, because it has no hardwired solution for it. Therefore, the production of fictitious phantasms has no place in this scheme, because it would incite non-human animals to react, always instinctively, on the basis of false images. By pushing the advanced assessment in the cogitative power, Lambertus keeps an identical scheme between animals and humans in common sense and imagination. The scheme only bifurcates at the level of cogitative-estimative power.

This improved articulation of Thomas's opinion went beyond the latter's thought and aimed to fill a doctrinal incompleteness. The incompleteness of Aquinas's reflection provided his followers with the possibility of developing their own ideas. In his attempts to streamline and complete Thomas Aquinas, Lambertus de Monte developed his own views in the process: As phantasms need constant evaluation in terms of veracity, then having them as act in the cogitative power, and thus closer to reason, sounds like an improvement in maximizing productivity by minimizing "noise". Lambertus seems to maintain a more central role for cogitative power and phantasy than Aquinas – not only in the cognition of particulars, but also in the acquiring of universals from the intellect. Thus, our Thomist Lambertus appears much more unorthodox than we usually assume for the Central European doctrinal schools of thought, and he seems to owe Albert the Great. Further research must establish whether his interpretation was more widely accepted in Cologne and elsewhere, and in what measure it was directed against or towards the Albertists viewpoint.

While teaching on the basis of the Prague compendium *Parvulus philosophiae naturalis*, the Anonymous Master inserted parts of Lambertus's discussion in his commentary to correct the compendium, and to improve Thomas Aquinas. The compendium was thus an important discursive tool on the main topics, maybe one of the best on the market in its day, but too succinct, outdated and Albertist-biased, in need of new angles for consideration. This is interesting, because it shows an alignment of different sources in the Thomistic school of thought, within the context of the *Wegestreit,* which is particular for Cologne during this period.

PETRA MUTLOVÁ

The Dresden School at Prague University: Peter of Dresden and his *De congruitate grammaticali**

Introduction

Before 1409, Prague University had drawn to itself a number of scholars and educated people from neighboring areas. The Kuttenberg Decree issued on 18 January 1409 secured the decisive voice in university matters to the Bohemian nation, a fact which entailed profound changes in the university administration. The consequent secession of academics from the other three university nations caused Prague University to lose its international recognition, and it became a provincial institution, similar to other recently founded universities in the region[1]. Although the precise effects and political implications of this issue have been discussed and analyzed at length, a significant number of writings relevant to the curriculum and the transmission of knowledge at Prague University in this period are still poorly researched. By means of analyzing some of these texts, this study aims to add to a better understanding of the situation at Prague University around 1409.

Several sources from the beginning of the fifteenth century mention that a group of Germans, allegedly from Dresden, ran a school located at the Black Rose House in the New Town of Prague[2]. This group of foreign academics, who

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1 M. Nodl, *Das Kuttenberger Dekret von 1409. Von der Eintracht zum Konflikt der Prager Universitätsnationen*, Köln / Weimar / Wien, Böhlau Verlag, 2017. For an overview of previous research, see F. Šmahel, M. Nodl, "Kuttenberger Dekret nach 600 Jahren. Eine Bilanz der bisherigen Forschung," in *Acta universitatis Carolinae – Historia universitatis Carolinae Pragensis*, 49–2 (2009), p. 19–54.

2 Most of them are well-known narrative sources for the beginnings of the Hussite period: Lawrence of Březová's *Hussite chronicle*, Piccolomini's *Historia Bohemica*, *The beginnings of Hussitism* chronicle, *Chronicon Procopii notarii Pragensis*, John Papoušek's narrative, and others. An overview of these testimonies can be found in P. Mutlová, "Die Dresdner Schule in Prag: eine waldensische ‚Connection'?", in A. de Lange, K. Utz-Tremp (eds.), *Friedrich Reiser und die ‚waldensisch-hussitische Internationale' im 15. Jahrhundert*, Heidelberg / Ubstadt-Weiher / Basel, Verlag Regionalkultur, 2006, p. 261–276.

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found a shelter in this house belonging to the Bohemian university nation, played an important role in the scholarly disputes in pre-Hussite Prague[3]. Despite numerous references to this group – traditionally labeled the Dresden School due to its alleged origin – scholars remain uncertain as to the exact nature of this school or the *bursa* it reportedly ran, how it functioned, or whom it comprised. These nonconformists were apparently centered around Peter of Dresden and Nicholas of Dresden, two well-educated theoreticians with extreme ideas concerning contemporary Church and society. The connection of the Dresden School to Prague University must have been markedly free. There is evidence that some of these Dresdeners were active in Prague before 1409, left in consequence of the Kuttenberg Decree, found refuge in Dresden at a local school and made a full circle by coming back to Prague around 1412. What the connection of the Dresdeners with Prague University was, and why they considered it worth coming back to Prague under such eventful circumstances, remains to be answered. The impact of these men on the curriculum in Prague, or which of them and in what form actually taught there, are also interesting yet unresolved questions. I will try to answer some of these based on the example of Peter of Dresden, one of the leading figures of this group. Peter's connection to the Dresden School and his teaching at Prague University are the focus of this study. A short grammatical treatise that he wrote will serve as a case in point.

1. Biography of Peter of Dresden

Peter of Dresden's biography is of crucial importance for the connection between the Dresden School and Prague University. Nothing is known about his family background or earlier life until the time of his studies, but it is likely that he was born around 1365[4]. It has been widely accepted by modern scholars that Peter was active in Prague some time before 1409 and that he returned around 1412[5]. Several contrasting hypotheses have been raised concerning Peter's studies at Prague University[6]. The reason for this is that there are ambiguities in the register of the Facul-

3 The most recent study on the Dresden School is F. Machilek, "Von der 'Dresdner Schule' in Prag zu Friedrich Reiser und Stephan von Basel – 'Deutsche Hussiten' im 15. Jahrhundert", in A. Strübind, T. Weger (eds.), *Jan Hus. 600 Jahre Erste Reformation*, Munich, De Gruyter Oldenbourg, 2015, p. 59–69. See also H. Kaminsky, D. L. Bilderback, I. Boba, P. N. Rosenberg (eds.), *Master Nicholas of Dresden: The Old Color and the New. Selected Works Contrasting the Primitive Church and the Roman Church*, Philadelphia, American Philosophical Society, 1965, p. 5–28.

4 See F. Šmahel in *Lexikon des Mittelalters*, vol. 6, 1993. CD-ROM (Stuttgart, J. B. Metzler Verlag, 2000); Machilek, "Von der 'Dresdner Schule' in Prag", p. 60.

5 This was accepted mostly in the older German literature, for instance O. Meltzer, "Die Kreuzschule zu Dresden bis zur Einführung der Reformation (1539)", in *Mitteilungen des Vereins für Geschichte und Topographie Dresdens und seiner Umgebung*, 7 (1886), p. 33–34; O. Meltzer, "Ein Traktat Peters von Dresden", in *Dresdner Geschichtsblätter*, 16–4 (1907), p. 193–202; O. Richter, "Dresdens Bedeutung in der Geschichte", in *Dresdner Geschichtsblätter*, 16–4 (1907), p. 185.

6 His studies in Prague are accepted as fact by H. Haupt, "Waldenserthum und Inquisition im südöstlichen Deutschland seit der Mitte des 14. Jahrhunderts", in *Deutsche Zeitschrift für Geschichtswissenschaft*,

ty of Arts, where more than one name appears that could theoretically be identified with Peter of Dresden.

A certain *Petrus de Dreste* received his bachelor's degree in 1374[7]. In 1379, *Petrus de Drosena* took his bachelor's exam, and the same name (*Petrus de Drosna*) is recorded as passing the master's degree examination in 1386[8], while later on, *Mag. Petrus de Droszna* entered the Faculty of Law in 1395[9]. Moreover, the list of ordinands from the Prague diocese contains the name of *Mgr. Petrus Kerszner de Drosna* (or *Korszner-Drosna*), *canonicus eccl. Lubucen.*, who was ordained a subdeacon in Prague in 1396 and a deacon in 1397[10]. The Lubuc in question can be identified with the small city of Lebus in Brandenburg. These names could, therefore, refer to one, two or even more different figures[11]. Since Peter's name does not appear in the registers of any other relevant university, it seems very likely that one of the above names from Prague University's registers pertains to Peter of Dresden. The question then remains as to which of the Peters who studied in Prague might be identical with Peter of Dresden. There is no reason to reject the evidence of the primary sources and believe that either Peter of Dreste received a bachelor's degree from Prague University in 1374 or that Peter of Drosna, who had come from Brandenburg, became a master of arts and bachelor at the Faculty of Law at the same university. Either of them could also have been ordained a priest in 1396–1397, but the similarity of names makes it more likely that it was the Peter from Brandenburg.

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3 (1890), p. 356; Richter, "Dresdens Bedeutung", p. 185; D. Girgensohn, *Peter von Pulkau und die Wiedereinführung des Laienkelches*, Göttingen, Vandenhoeck & Ruprecht, 1964, p. 133; Machilek, "Deutsche Hussiten", p. 271; Others take a more cautious position, e.g. F. Šmahel, *Die Hussitische Revolution. Trans. by Thomas Krzenck and ed. by Alexander Patschovsky*, vol. 1, Hannover, Hahnsche Buchhandlung, 2002, p. 568–569.

7 *Liber decanorum facultatis philosophicae Universitatis Pragensis ab anno Christi 1367 usque ad annum 1585*, pars I, eds. A. Dittrich, A. Spirk, Pragae, Typis Joan. Nep. Gerzabek, 1830–1832, p. 159. This person (sometimes ascribed a mistaken year for his promotion of 1373) is identified with Peter of Dresden by M. Uhlirz, "Petrus von Dresden. Ein Beitrag zur Geschichte des Laienkelches", in *Zeitschrift des deutschen Vereines für die Geschichte Mährens und Schlesiens*, 18 (1914), p. 236; H. Boehmer, "Magister Peter von Dresden", in *Neues Archiv für Sächsische Geschichte und Altertumskunde*, 36 (1915), p. 225; H. Köpstein, "Über die Teilnahme von Deutschen an der hussitischen revolutionären Bewegung – speziell in Böhmen", in *Zeitschrift für Geschichtswissenschaft*, 11–1 (1963), p. 135; Girgensohn, *Peter von Pulkau*, p. 133; H. Butte, *Geschichte Dresdens bis zur Reformationszeit*, Köln / Graz, Böhlau Verlag, 1967, p. 106.

8 *Liber decanorum facultatis philosophicae Universitatis Pragensis*, pars I, p. 188, 236. His name appears in 1376 as an *assessor* and examiner (*Liber decanorum facultatis philosophicae Universitatis Pragensis*, pars I, p. 312, 315, 318, 324).

9 *Album seu matricula facultatis juridicae universitatis pragensis ab anno Christi 1372, usque ad annum 1418*, Monumenta historica universitatis Carolo-Ferdinandae Pragensis, vol. 2/1, Praha, Joan. Spurny, 1834, p. 147.

10 *Liber ordinationum cleri*, vol. 9/1, *1395–1399*, ed. A. Podlaha, Praha, Sumptibus s. f. metropolitani capituli Pragensis, 1910, p. 25, 33; see also E. Doležalová, *Svěcenci pražské diecéze 1395–1416* [Ordinands of the Prague diocese 1395–1416], Praha, Historický ústav, p. 2010.

11 Doubts whether the canon of Lubusz (Lebus) diocese can be identified with Peter of Dresden were articulated by F. M. Bartoš, *Husitství a cizina* [Hussitism and Foreign Countries], Praha, Čin, 1931, p. 127–128. S. Hoyer, "Peter von Dresden und die Anfänge der Hussitenbewegung", in *Dresdner Hefte. Beiträge zur Kulturgeschichte*, 65 (2001), p. 63, rejects that Drosna or Drozna could be a Latin variant of Dresden.

Peter's subsequent destiny, i.e. the fact that he left Prague and was subsequently connected to the Waldensian heresy, makes it more difficult to connect him with the ordained priest and a bachelor of law. The fragmentary nature of the registers of Prague University makes it probable that the Peter of Dresden who belonged to the Dresden School in Prague did study liberal arts in the Bohemian capital in the last quarter of the fourteenth century.

Subsequently, Peter's name can be found in a *Schenkbücher* from Nuremberg in 1405, a fact that has been broadly recognized in modern scholarship[12]. Peter was supposedly in touch with the local Waldensians in Nuremberg[13]. Later on, the oldest *Stadtbuch* of Dresden records the name of "Magister Petrus Gerticz" in 1406[14]. Between this date and his return to Prague around 1412, Peter apparently held the position of rector at the local *Kreuzschule* in Dresden[15]. His activities here are not very lucidly documented, although his rectorship marked a thriving period at the *Kreuzschule*. There is no direct evidence as to how long he held the office of the rector. In 1407, a certain Andreas, his predecessor in the office, is recorded in the sources, subsequently the office was vacant for some time, and in 1413 Peter's successor, Nicholas Thirmann, issued a new school order[16]. It has not yet been satisfactorily explained how or why Peter was assigned to this post[17]. The office of headmaster was often connected with that of the town scribe, but in Peter's case this was probably not so[18]. The rectors of the *Kreuzschule* were also traditionally expected to hold a master's degree, as was usual in other places at that time, and this strengthens the supposition that Peter received a higher degree from Prague University. This would also solve the slightly problematic point that Friedrich Eppinge, a bachelor in canon law from Heidelberg and thus a holder of a higher academic degree, worked under Peter's rectorship at the *Kreuzschule* as one of his under-teacher (*locatus*)[19].

At any rate, Peter did not spend a long time in Dresden. In October 1411, a decree regulating the curriculum in secondary schools was issued by Bishop Rudolph

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12 F. Machilek, "Ein Eichstätter Inquisitionsverfahren aus dem Jahre 1460", in *Jahrbuch für fränkische Landesforschung*, 34/35 (1975), p. 441 with reference to MS Nuremberg, Staatsarchiv, Amts- und Standbücher, Nr. 313, fol. 96v.

13 Machilek, "Von der 'Dresdner Schule' in Prag", p. 60.

14 Peter's donation to the poor is recorded here, see E. Boer, *Das älteste Stadtbuch von Dresden 1404–1436*, Dresden, Historische Kommission der Sächsischen Akademie der Wissenschaften zu Leipzig, 1963, p. 8; *Die drei ältesten Stadbücher Dresdens (1404–1476)*, eds. J. Klingner, R. Mund, T. Kübler, J. Oberste, Leipzig, Leipziger Universitätsverlag, 2007, p. 98.

15 Meltzer, "Die Kreuzschule zu Dresden", p. 33–34.

16 Meltzer, "Die Kreuzschule zu Dresden", p. 32–33. There is no data concerning the precise duration of Andreas's or Peter's offices, but the series of rectors is sketchy even for later periods, see O. Richter, *Geschichte der Stadt Dresden*, Dresden, Baensch, 1900, p. 265.

17 Hoyer, "Peter von Dresden", p. 64, puts forward a theory that Peter was connected to Dresden through origin, kin, or previous activity, thus explaining his donation to the poor recorded in the *Stadtbuch*.

18 This idea is also rejected by Butte, *Geschichte Dresdens*, p. 107.

19 H. Heimpel, *Drei Inquisitions-Verfahren aus dem Jahre 1425: Akten der Prozesse gegen die deutschen Hussiten Johannes Drändorf und Peter Turnau, sowie gegen Drändorfs Diener Martin Borchard*, Göttingen, Vandenhoeck & Ruprecht, 1969, p. 69.

of Meissen, which was very likely directed at Peter's activity at the *Kreuzschule*[20]. It is also possible that the decree was meant to strengthen the position of the newly founded university in Leipzig, and not only to regulate secondary schools[21]. Yet it seems that Peter left Dresden under normal circumstances, as his successor mentions his rectorship in a collegial tone.

Having left Dresden with other colleagues around 1411, Peter moved to Zittau, where he might have stopped for a few months – his student from Dresden, John Drändorf, spent some time there between 1411 and 1412[22]. Subsequently, we can trace the group in Prague in the summer of 1412.

Before returning to Prague, Peter is believed to have made one more detour. According to the *Chronicon Chemicensis*, Peter worked as a teacher in Chemnitz and Zwickau in 1414 after he fled from Dresden[23]. However, this piece of information without doubt comes from a later source, and is most likely based on the *Annales urbis Misnae* composed by Georgius Fabricius in 1569. Fabricius recorded that in 1410 Peter returned to Meissen and became a headmaster first in his hometown, and then in Chemnitz and Zwickau[24]. Thereafter, the sequence of Peter's travels has been interpreted differently in a number of sources[25]. It does not seem plausible that Peter could have left Dresden around 1411, travel through Chemnitz and Zwickau, and then return to Prague by way of Zittau in 1412 at the latest. On the other hand, from a geographical point of view, it seems acceptable that setting out from Nuremberg in 1405 Peter could have had time to spend some time in Zwickau and Chemnitz before settling for a few years in Dresden (perhaps even in 1406), from whence he later moved through Zittau to Prague.

Because Peter's departure from Prague was formerly connected with the Kuttenberg Decree of 1409, earlier scholarship accepted that Peter held the office of rector at

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20 *Urkunden der Markgrafen von Meissen und Landgrafen von Thüringen 1407–1418. Codex diplomaticus Saxoniae regiae* I, Abtheilung B, vol. III, ed. H. Ermisch, Leipzig, Giesecke & Devrient, 1909, p. 203–204, no. 220.

21 Hoyer, "Peter von Dresden", p. 66.

22 Drändorf's biography has been reconstructed based on the surviving inquisitional protocol, see Heimpel, *Drei Inquisitions-Verfahren*, p. 25–30, 55–97, 145–195.

23 Cristianus Schoettgenius, *Dissertatiuncula de Antiquissimis literarum in terris superioris Saxoniae fatis*, Dresden, Harpeter, 1748, p. 19.

24 Georgius Fabricius Chemnicensis, "Annalium urbis Misnae liber secundus", in Georgius Fabricius Chemnicensis, *Rerum Misnicarum libri VII.*, Leipzig, E. Voegelin, 1569), 140: "Petrus ille rediit in Misnam, et ludi moderator fuit primum in patria, deinde Chemnicii, et Zuiccauiae."

25 Fabricius' information was challenged as early as in the 17th century, for example, Johann-Christophorus, *Dissertatio historica de Petro Dresdensi*, Leipzig, Ch. Michaelis, 1678, par. 17, p. 98–99 cites Fabricius's opinion but argues that Fabricius got the date (i.e. 1410) wrong – he maintains that Peter left Prague only once in 1409, subsequently accepted the post of teacher in Dresden, then Chemnitz and Zwickau, and returned to Prague only around 1414. An obscure description is offered for example by E. Machatschek, *Geschichte der Bischhöfe des Hochstiftes Meissen in chronologischer Reihenfolge*, Dresden, C. C. Meinhold & Söhne, 1884, p. 369, 385. Butte, *Geschichte Dresdens*, p. 107, mentions without any reference to sources that Peter, upon leaving Prague around 1409, traveled through Zwickau where there was a Waldensian community. Heimpel, *Drei Inquisitions-Verfahren*, p. 25–26, suggests that Peter traveled the other way around, i.e. through Zwickau to Dresden.

the *Kreuzschule* only around 1409–1412[26]. Nevertheless, if the above-listed evidence is taken into account, it seems more probable that Peter took over this office as early as after 1406, and held it until 1411, or 1412. The hypothesis that Peter left Prague much earlier than 1409 is supported by other minor points, such as his stay in Nuremberg in 1405 and the evidence that he was in Dresden in 1406 (granted that his identification with Petrus Gerticz is correct), and possibly also by the short interruption of his journey in Zwickau and Chemnitz. Afterwards he traveled through Zittau to Prague (a fact that none of the above sources contradicts) where he appeared in 1412 at the latest.

Once in Prague, Peter's activity is better recorded in the primary sources. He played an important role at the *bursa* which the German masters ran in the Black Rose House in the New Town of Prague. He was mentioned as a teacher by some of the students. Peter's efforts here were long associated with the introduction of the lay chalice, which is now known to be inaccurate[27]. It seems that Nicholas of Dresden took over the leading role while Peter continued to carry out his teaching activities. During the period in Prague, Peter allegedly wrote several treatises, although the dating and his authorship of some of these texts is very questionable and will be discussed in the following[28].

Different places and years of Peter of Dresden's death have been suggested by scholars, ranging from 1421 to 1427. The confusion stems from two contradicting testimonies: The majority of older sources knew of a Peter who was burnt in Regensburg in connection with the trials in 1421 and 1423[29]. On the other hand, a student of the Dresden School, John Drändorf, told the inquisitors during his interrogation on 13 February 1425[30], that Peter and Friedrich Eppinge both died in Prague[31]. Scholars still vary in their opinions concerning Peter's death[32].

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26 Haupt, "Waldenserthum und Inquisition", p. 356; Uhlirz, "Petrus von Dresden", p. 229; Boehmer, "Magister Peter", p. 227 and others. Heimpel, *Drei Inquisitions-Verfahren*, p. 158–159 discusses why a later date for the Dresdeners' arrival in Prague, mentioned in some sources, is not acceptable, and argues that Peter and his colleagues had already reached Prague by 1412.

27 H. Krmíčková, *Studie a texty k počátkům kalicha v Čechách* [Studies and Texts Concerning the Beginnings of the Lay Chalice in Bohemia], Brno, Masaryk University, 1997, in particular p. 3–15.

28 One of the first, tentative overviews of Peter's works was printed by F. M. Bartoš, "Nové spisy Petra a Mikuláše z Drážďan [New Works of Peter and Nicholas of Dresden]", in *Reformační sborník*, 8 (1941), p. 66–67.

29 *Anonymi Ratisbonensis Farrago Historica rerum Ratisponensium ab Anno Christi DVIII usque ad Annum Christi MDXIX*, ed. A. F. Oefelius, Augustae Vindelicorum sumptibus Ignatii Adami et Francisci Antonii Veith bibliopolarum, 1763, p. 511. The wording of the passage is not absolutely clear, and thus, the opinion that Peter's death occured in 1421 was voiced by Richter, *Geschichte der Stadt Dresden*, p. 56, and Butte, *Geschichte Dresdens*, p. 108. Girgensohn, *Peter von Pulkau*, p. 133, thought that Peter might have died between 1421–1423, while Boehmer, "Magister Peter", p. 228, suggested that his death took place between 1421 and 1425 (i.e. Drändorf's death); 1423 was accepted as the date of Peter's death by H. Köpstein, "Zu den Auswirkungen der hussitischen revolutionären Bewegung in Franken," in K. Obermann, J. Polišenský (eds.), *Aus 500 Jahren deutsch-tschechoslowakischer Geschichte*, Berlin, Rütten & Loening, 1958, p. 15. Machatschek, *Geschichte*, p. 369 suggests an even later date – 1427.

30 In 1424, Drändorf set out for an astonishing travelling enterprise to Germany, during which he severely criticized the moral decline of the clergy, exhorted people to reject ecclesiastical bans in secular matters, and ultimately called for an armed revolt. He was caught by the Inquisition, interrogated and burnt at the stake in Heidelberg in 1425. See above, note 22.

2. Dresdeners as Teachers in Prague

As the above-mentioned primary sources suggest, the Dresdeners ran a *bursa* located at the Black Rose House in the New Town of Prague[33]. This house belonged to the *nacio Bohemorum* of Prague University and served as one of its main centers. This undeniable yet free connection with Prague University – for which there is direct evidence for example in the so-called Czech rhymed chronicle the *Beginnings of Hussitism* or in the *Chronicon Procopii notarii Pragensis* – was established very early, and lingers in the scholarly literature down to the present[34]. This period of the Dresden School (i.e. in Prague) is often described as a highly attractive and influential enterprise: Enea Silvio Piccolomini in his *Historia Bohemica* claimed that Peter of Dresden undertook in Prague the teaching of boys[35]. An anonymous account reports that Peter and Nicholas attracted a number of scholars and infected them by discussing curious and cunning questions and improper fantasies[36]. This is endorsed by further evidence[37]. Moreover, one of the students of the Dresden School, Peter Turnau, resolutely denied ever having heard a lecture by Peter of Dresden when he studied in Prague between 1412 and 1414[38]. His evidence, given during his interrogation in 1425, sheds light on the apparent popularity of Peter's lectures – the

31 Heimpel, *Drei Inquisitions-Verfahren*, p. 69, 159. Peter's death in Prague was accepted by Uhlirz, "Petrus von Dresden", p. 236. Haupt, "Waldenserthum und Inquisition", p. 358, expressed doubts whether the Peter burnt in Regensburg in 1421 is identical with Peter of Dresden who, according to Drändorf, died in Prague.

32 A. Patschovsky, "Häresien", in W. Brandmüller (ed.), *Handbuch der bayerischen Kirchengeschichte*, vol. 1, *Von den Anfängen bis zur Schwelle der Neuzeit* 2. *Das kirchliche Leben*, St. Ottilien, Eos Verlag, 1999, p. 767, holds that there are grounds to believe that Peter died in Regensburg in connection with the processes that took place between 1421–1423; Hoyer, "Peter von Dresden", p. 68, rejects the idea that Peter died in Regensburg; Machilek, "Deutsche Hussiten", p. 271, also claims that contrary to earlier opinions Peter died in Prague; the same opinion is held by Šmahel, *Hussitische Revolution*, vol. 1, p. 568–569.

33 The development of the meaning of the word *bursa* in connection with the Prague University is discussed by F. Šmahel, "Scholae, collegia et bursae universitatis Pragensis. Ein Beitrag zum Wortschatz der mittelalterlichen Universitäten", in F. Šmahel, *Die Prager Universität im Mittelalter / The Charles University in the Middle Ages. Gesammelte Aufsätze / Selected Studies*, Leiden / Boston, Brill, 2007, p. 85–102.

34 Machilek, "Von der 'Dresdner Schule' in Prag", p. 46–59.

35 *Aeneae Silvii Historia Bohemica*, ed. D. Martínková, A. Hadravová, J. Matl, Praha, Koniasch Latin Press, 1998, p. 94–96: "[…] puerorum docendorum curam accepit."

36 F. M. Pelzel, *Lebensgeschichte des Römischen und Böhmischen Königs Wenceslaus*, vol. 2, Prag / Leipzig, Schönfeldische-Meißnerische Buchhandlung, 1790, p. 156–157 (appendix): "Petrus et Nicolaus puerorum eruditores […] plurimas curiosas moventes questiones […] scolarium multitudinem suorum multipliciter infecerunt. […] Et inter alias eorum versutias […] et cetere plures eorum erant sinistre quas docebant fantasie."

37 Such as a note in a late medieval manuscript of Bohemian provenance which claims that the Dresdeners seduced great numbers of people. See MS Prague, KMK, A 79/5, fol. 261r: "Ista scripta […] sunt redacta in hanc formam per Draznenses, qui de Drazna expulsi plurimos seduxerunt."

38 Heimpel, *Drei Inquisitions-Verfahren*, p. 108. Turnau participated in a mission planned by his fellow Dresdener John Drändorf aiming at a revolt against the clergy and was similarly caught. Turnau was tried during the same inquisitional process and burnt at the stake later in 1425.

fact that the inquisitor had information about it, together with Turnau's denial, may both point to Peter's influence at Prague University. In all probability, the flow of ideas that the Dresdeners taught there was rather attractive.

Nevertheless, there is only scarce evidence for the actual teaching practices of the Dresdeners at the Faculty of Arts in Prague. How could have any of these men have left an imprint on the Faculty's curriculum, or what kind of influence could they possibly have had? If we disregard the theological disputations, in which Nicholas of Dresden mostly took part – which had strong political implications and were not connected to teaching[39], – the only texts that can be connected with teaching are those written by Peter of Dresden. An overview of all of the possibly relevant texts will prove this beyond doubt.

The most prolific author of this group, Nicholas of Dresden, composed during his stay in Prague around two dozen treatises that dealt mostly with theological (lay chalice, purgatory, simony, oath-taking etc.) or legal topics[40]. Only two of his texts seemingly have a connection to teaching, a *Decalogus utilis* with an explicit "for the instruction of boys" (*pro informacione puerorum*) and a *Tractatus de fide catholica*. The *Decalogus* (c. 1410–1412), a short exposition of the Decalogue and the sacraments which survives in a single copy, is targeted at young boys, but through the mediation of teachers and priests[41]. The *Tractatus* (c. 1415–1417) is another catechetic treatise and an amalgamation which builds on two other texts, the *Jádro učení křesťanského* (The Basics of the Christian Faith) and *Katechismus* (Catechism), written in Czech by Jan Hus. The Latin translation might have been composed for students of lower schools, as its length, structure and content show[42]. In both cases, however, there is no apparent connection with the curriculum at the Faculty of Arts in Prague.

A famous English supporter of the Hussites, Peter Payne, has been connected with the group of Germans in Prague, but this attractive proposition is not substantiated by the source evidence[43]. Payne was in Prague from late 1414, but was admitted to the board of masters of Prague University only on 13 February, 1417, and consequently acted as an examiner at the bachelor exams. During his early days in Prague, he is believed to have composed a mnemotechnical device for students – which has been considered evidence of his teaching activities and an outcome of his connection with the Dresden School[44]. This text, preserved in a single manuscript, is referred to as *Dicta magistri Petri Henkliss* and can be positively attributed

39 For more on the situation in Prague, see Šmahel, *Hussitische Revolution*, vol. 2, p. 788–918.

40 A list of Nicholas's treatises was first compiled by H. Kaminsky in *Master Nicholas*, p. 28–32; later additions and corrections concern mostly manuscript circulation.

41 E. Havelka, *Husitské katechismy* [Hussite Catechisms], Praha, Česká akademie věd a umění, 1938, p. 100–110.

42 Havelka, *Husitské katechismy*, p. 81–91, 192–205; printed also by J. Daňhelka (ed.), *Drobné spisy české* [Shorter Czech Writings], in *Opera omnia Iohannis Hus IV*, Praha, Academia, 1985, p. 532–542.

43 Payne's biography is described by F. Šmahel in the *Oxford Dictionary of National Biography*, vol. 43 (2004), art. 21650.

44 F. M. Bartoš, *Literární činnost M. Jana Rokycany, M. Jana Příbrama, M. Petra Payna* [The literary works of M. Jan Rokycana, M. Jan Příbram, M. Peter Payne]. Sbírka pramenů k poznání literárního života československého, vol. 3, no. 9, Praha, Česká akademie věd a umění, 1928, p. 98, no. 6.

to Payne[45]. It is as yet unedited, but even a perfunctory examination shows that it is not a homogeneous piece. Peter's text is connected to a textual unit dealing with penitence, copied in this codex on preceding folios. One of its parts covers a topic similar to the above catechetic tract by Nicholas – it also interprets the *Decalogue* and touches upon the problem of confession, penitence and sins in a similar manner. Yet it does not seem to be a device for students and certainly cannot be regarded as evidence for Payne's teaching activities at the Faculty of Arts.

As can be seen, direct evidence about the actual ideas that the Dresdeners promoted in Prague through their teaching activities is scanty. Most of the narrative sources that attest to the existence of the Dresden School in Prague were primarily aimed at criticizing the introduction of the lay chalice, in which Nicholas of Dresden played a major role. Is it possible that the lay chalice – as it truly was an original and explosive issue – is the single reason why the Dresdeners were labeled *novitatum amatores* (lovers of novelties) in these sources? Or could there have been some other reasons related to the curriculum at Prague University? The literary output of Peter of Dresden contains valuable hints of this.

3. Peter and his *De congruitate grammaticali*

Some testimonies connect the teaching practices of the Dresdeners with grammar and logic. It has been mentioned above that John Drändorf, before arriving in Prague around 1412, met with Peter Turnau in Zittau. Turnau explicitly mentioned that during his one-year-long stay in Zittau he studied logic with an unknown Master Albertus[46]. At the *Kreuzschule* in Dresden, which prepared students for higher university education, the pupils were divided into three groups, comprising those who dealt with grammar, logic, and philosophy[47]. For the grammar instruction there, further unspecified *grammaticalia* were prescribed, apart from the first and the second parts of Alexander of Villa Dei's *Doctrinale*[48]. It would seem logical for the Dresdeners to continue their teaching in a similar vein in Prague, too[49] – yet the texts of Peter of Dresden indicate that they were aimed at a different audience. Let us take a closer look at them.

During his stay in Prague, Peter of Dresden allegedly authored several texts that could be deemed relevant for the university curriculum. The authorship of some

45 MS Vienna, ÖNB, Cod. 4550, fols 278r–285v. The manuscript was copied around 1420–1421 and contains numerous texts by Czech reformers. Contrary to the data provided in the catalog and in the scholarly literature, Payne's text starts only on fol. 279r with the title *De novem alienis peccatis*.

46 Heimpel, *Drei Inquisitions-Verfahren*, p. 108, 206, discusses the identity of this Albert and shows that there is only one person of this name, who was a rector at the local school in Zittau in 1433, and suggests – although with certain reservations – that in 1411 this Albert could have been an under-teacher. Nothing more is known about Albert.

47 H. Ermisch, "Die älteste Schulordnung der Kreuzschule zu Dresden", in *Neues Archiv für sächsische Geschichte und Altertumskunde*, 13 (1892), p. 346–347.

48 Ermisch, "Die älteste Schulordnung der Kreuzschule zu Dresden", p. 347.

49 Suggested by J. Sedlák, *Mikuláš z Drážďan* [Nicholas of Dresden], Brno, Hlídka, 1914, p. 4.

of these texts is disputable[50]. The same applies to the dating of Peter's treatises, because in most cases it is not clear whether they were written prior to Peter's leaving Prague (i.e. before 1405), or upon his return around 1412. The most confusing case is that of a highly popular Aristotelian compendium, widely attributed to Peter in the scholarly literature, entitled *Parvulus philosophiae naturalis*[51]. Another tract attributed to Peter is a short commentary on logic, the *Parvulus logicae*[52]. He might also be the author of a *Parvulus philosophiae moralis* and two short expositions entitled *Conspectus divisionis universalium* and *Abbreviata Posteriorum* – all of these can be ascribed to him only with certain reservations[53]. Therefore, the only indisputably authentic work by Peter of Dresden, which is at the same time relevant for the curriculum at Prague University, is a grammatical treatise *De congruitate grammaticali*.

This short tract with an incipit *Congruitas grammaticalis consistit in debita proporcione* was found by Otto Meltzer, who only knew of a single copy preserved in Prague[54]. The codex presently housed in the National Library of the Czech Republic in Prague (MS Prague, NK ČR, V H 21) contains a date of 1415 and bears an old shelf-mark of Charles College library (S 13 K). Nevertheless, two more copies of this text survive. A manuscript now in Mainz (MS Mainz, Stadtbibliothek, HS I 528) is dated to 1410 by several scribal colophons. This dating is also accepted by the modern cataloger[55]. The codex was copied in the Carthusian monastery in Mainz by a certain Johannes Lemlein, and contains another text ascribed to Peter, the *Parvulus philosophiae naturalis*. Another copy from the Metropolitan Chapter library in Prague (MS Prague, KMK, O 43) contains a scribal explicit of 1415[56]. This suggests that the treatise was composed in the first decades of the fifteenth century and circulated also in Bohemia. All three codices contain works dealing with grammatical and rhetorical issues.

This text has received little scholarly attention so far. It is a very short discussion written in the spirit of speculative, so-called modistic grammar. The study of grammar held a privileged position in the curriculum of medieval universities, and was understood as a mixed discipline of "the study of syntactic structure, philosophical

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50 A tentative overview of Peter's works was printed by Bartoš, "Nové spisy", p. 66–67.

51 Based on C. H. Lohr, "Medieval Latin Aristotle Commentaries, Authors: Narcissus – Richardus", in *Traditio*, 28 (1972), p. 352–354. See A. I. Dumała, "*Parvulus philosophiae naturalis* Piotra z Drezna", in *Studya Antyczne i Mediewistyczne*, 4–39 (2006), p. 281–294. Copies of this text that contain visual representation of ventricle brain diagrams were analyzed by A. R. Verboon, "Brain Ventricle Diagrams: A Century After Walther Sudhoff. New Manuscript Sources from the XVth century", in *Sudhoffs Archiv. Zeitschrift für Wissenschaftsgeschichte*, 98–2 (2014), p. 218, 231; see also her contribution in this volume.

52 Lohr, "Medieval Latin Aristotle Commentaries", p. 353, no. 1. I. Boh, "A Late-Mediaeval Assessment of the Scope of Logic: An Analysis of Parvulus logice", in *Studia mediewistyczne*, 22–1 (1983), p. 3–36, in his analysis of this text considered it an anonymous piece.

53 Lohr, "Medieval Latin Aristotle Commentaries", p. 354, no. 3–4; F. Šmahel, *Verzeichnis der Quellen zum Prager Universalienstreit 1348–1500*, Warsaw / Wrocław / Kraków / Gdańsk, Ossolineum, 1980, p. 53.

54 Based solely on this witness, Meltzer printed the text in his article "Ein Traktat", p. 200–202.

55 The catalog record is accessible from: http://www.manuscripta-mediaevalia.de/.

56 A. Podlaha, *Soupis rukopisů knihovny metropolitní kapitoly pražské* [Catalog of Manuscripts of the Prague Metropolitan Chapter Library], vol. 2, Praha, Česká akademie věd a umění, 1922, p. 513–514.

linguistics, philosophy of language, and in some cases also of the history and usage of particular vocabulary items"[57]. A group of grammarians formed in Paris in the second half of the thirteenth century strove to develop an elaborate theory of syntax, and for this purpose formulated the theory of *modi significandi* – and were thus labeled *modistae*, the modists[58]. Medieval grammatical theories developed diversely in various places and phases and, despite enormous progress owing to a number of recently edited relevant texts, still more research is needed to appreciate local phenomena, especially in the later phases[59]. The development of modism reached its apex at the beginning of the fourteenth century, when the nominalist philosophy (with which it was incompatible) was gaining popularity. Objections to modism were voiced not only in Paris, but notably also in Erfurt. The modistic grammar of the fifteenth century is often criticized as not offering any innovative contribution to the doctrinal development of linguistics, yet it retained its influence on university grammar instruction[60].

Modistic grammatical theory is exemplified by, amongst others, Thomas of Erfurt's tract *De modis significandi*, or the *Grammatica speculativa*, written around 1310, which was also widely circulated at Prague University[61]. The text gained immediate popularity, and as early as 1324 was commented upon. Thomas became the basic modistic authority of the fourteenth and fifteenth centuries and at the same time the last author to develop modistic theory in a significant way[62]. Thomas's *Grammatica speculativa* survives in almost forty medieval manuscripts, and in addition there are twenty-six manuscripts that contain commentaries on various parts of the text[63]. What is worth mentioning is that among the copies that contain a commentary, twelve are

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57 M. Sirridge, "Thomas of Erfurt", in M. Cameron, B. Hill, R. J. Stainton (eds.), *Sourcebook in the History of Philosophy of Language: Primary source texts from the Pre-Socratics to Mill*, Cham, Springer, 2017, p. 295. See also G. L. Bursill-Hall, *A Census of Medieval Latin Grammatical Manuscripts*, Stuttgart / Bad Cannstatt, Frommann – Holzboog, 1981, p. 11.

58 C. Marmo, *Semiotica e linguaggio nella Scolastica: Parigi, Bologna, Erfurt, 1270–1330. La semiotica dei Modisti*, Rome, Istituto Storico Italiano per il Medio Evo, 1994. For a survey of the usage of the term "modistae", see I. Rosier-Catach, "Modisme, prémodisme, proto-modisme: pour une définition modulaire", in S. Ebbesen, R. Friedman (eds.), *Medieval Analyses in Language and Cognition*, Copenhagen, Kongelige Danske Videnskabernes Selskab, 1999, p. 45–81.

59 For an overview of medieval theoretical grammar see I. Rosier-Catach, "Grammar", in R. Pasnau, Ch. van Dyke (eds.), *The Cambridge History of Medieval Philosophy*, vol. 1, Cambridge, Cambridge University Press, 2010, p. 196–216.

60 C. H. Kneepkens, "Some Notes on the Revival of Modistic Linguistics in the Fifteenth Century: Ps.-Johannes Versor and William Zenders of Weert", in R. L. Friedman, S. Ebbesen (eds.), *John Buridan and Beyond. Topics in the Language Sciences, 1300–1700*, Copenhagen, Det Kongelige Danske Videnskabernes Selskab, 2004, p. 69–76.

61 Thomas de Erfordia, *Grammatica speculativa*, ed. and transl. G. L. Bursill-Hall, London, Longman, 1972. For more on Prague University, see F. Šmahel, "The Faculty of Liberal Arts 1348–1419", in Šmahel, *Die Prager Universität im Mittelalter*, p. 229–238. For a list of modistic texts, see J. Pinborg, *Die Entwicklung der Sprachtheorie im Mittelalter*, Münster, Aschendorffsche Verlagsbuchhandlung, 1967, p. 309–344.

62 J. Zupko, "Thomas of Erfurt", in E. N. Zalta (ed.), *The Stanford Encyclopedia of Philosophy (Spring 2015 Edition)*, accessible from: https://plato.stanford.edu/archives/spr2015/entries/erfurt/.

63 *Verfasserlexikon*, vol. 9, col. 855; Bursill-Hall, *A Census*, passim; J. Pinborg, *Die Entwicklung der Sprachtheorie*, p. 318–320.

of Prague origin, three are preserved in Cracow and another three in Wroclaw, while the rest are scattered individually in various other libraries. This confirms a lively interest in Thomas's work in Prague, where many students had to undertake private grammar lessons. Therefore, Thomas's treatise provides good grounds for preliminary notes on Peter's text. A more careful comparison remains a task for the future.

Peter's short text deals with the concept of grammatical construction and lists several of the constructibles (*constructibilia*), which are to him adequate principles of the subject of syntax[64]. Unlike Thomas of Erfurt's comprehensive treatment, Peter's text focuses only on the second part of the *modus significandi* theory, the so-called *diasynthetica*, which covers the topics of construction, congruity, and perfection. The medieval concept of construction was derived from Priscian's *Institutiones grammaticae*, who did not develop it systematically; and only a fragment of construction theory appears in Alexander of Villa Dei's *Doctrinale*. That is also one of the reasons why medieval scholars paid a great deal of attention to this problem from the early twelfth-century onwards[65]. Peter claims to deal with grammatical congruity, i.e. the well-formedness of individual constructions, and for this purpose he discusses constructibles in some detail. Thomas of Erfurt defines construction as "a combination of constructibles made up of the modes of signifying, caused by the intellect and devised for the purpose of expressing a compound concept of the mind,[66]" and Peter's definition conforms with this[67]. Broadly speaking, however, there are various discrepancies between Thomas's and Peter's texts. Thomas discusses the construction in seven chapters (ch. 46–52) and subdivides the types of construction into intransitive and transitive, and further into those of acts and of persons (*constructio intransitiva/transitiva actuum et personarum*). Peter, however, follows a different path: Having listed the many species of constructibles, he touches upon the division of transitive and intransitive construction in the closing part of his text. There were a number of popular commentaries dealing with the concept of transitivity in the Middle Ages, and it is thus difficult to identify the source that might have inspired Peter's treatment. Peter does not discuss either the perfect union of two individual constructibles (*perfectio constructionis*) in any

64 For more details, see M. A. Covington, *Syntactic Theory in the High Middle Ages. Modistic Models of Sentence Structure*, Cambridge, Cambridge University Press, 1984, p. 61–76 and *passim*.

65 C. H. Kneepkens, "On Mediaeval Syntactic Thought With Special Reference to the Notion of Construction", in *Histoire Épistémologie Langage*, 12–2 (1990), p. 139–176; L. G. Kelly, *The Mirror of Grammar: Theology, philosophy and the Modistae*, Amsterdam / Philadelphia, John Benjamins Publishing Company, 2002, p. 165–198. For later developments in the Polish context in the fifteenth century see K. Krauze-Błachowicz, "Johannes Glogoviensis' Concept of Construction", in *Studies in Logic, Grammar and Rhetoric*, 6–19 (2003), p. 32. On influential subjects of grammar formulated by Robert Kilwardby, see C. H. Kneepkens, "Robert Kilwardby on Grammar", in H. Lagerlund, P. Thom (eds.), *A Companion to the Philosophy of Robert Kilwardby*, Leiden, Brill, 2013, p. 17–64; especially p. 28–32.

66 Thomas de Erfordia, *Grammatica speculativa*, p. 279: "Constructio est constructibilium unio ex modis significandi et intellectu causata ad exprimendum mentis conceptum compositum finaliter adinventa."

67 "Construccio est constructibilium unio ad exprimendum mentis conceptum adinventa." See below in the edition lines 90ff.

detail, or the case when the subject and predicate are not expressed explicitly in a sentence – a typical case being the omission of a definite pronominal subject. The modists therefore differentiate between *perfectio secundum sensum* and *perfectio secundum intellectum* (completeness according to sense and according to understanding), which is entirely missing from Peter's text[68].

In very general terms, Peter's *De congruitate* does not follow either the structure of the arguments or the examples of Thomas's standard handbook, but represents only a simplified fragment of (half-)modistic theory. The simple and well-organized structure of the text indicates that it was a practical, not theoretical, handbook of grammar, a tool to help grasp the basic concepts and terminology of modism. The edition of the text printed in the second part of this study will contribute to a deeper insight into Peter's *modus operandi*. It remains for the experts to appreciate the points made by Peter and place his text in the wider context of late medieval linguistic tradition. For the matter at hand, the fact that the sketchy treatment stresses the didactic purpose of the *De congruitate* is of primary significance.

By the beginning of the fifteenth century speculative grammar became outdated in Paris – where it once flourished – and as a tool to study Latin syntax it was sidelined by other approaches. Thomas's *Grammatica speculativa,* however, remained a popular textbook at Prague University even after the criticism and attack of the representatives of the "new logic"[69]. In the second half of the fifteenth century, speculative grammar notably revives in Cracow, as can be observed in the works of a well-known lecturer at Cracow University Johannes Glogoviensis[70]. An inspection of low-level grammatical texts used in the schools shows that speculative grammar played an important role in university training up to the beginning of the sixteenth century. A survey of such texts – i.e. not only highly theoretical works, but those where modistic theory played varying roles – can tell us much more about the intellectual climate of the period[71]. The channels of circulation of the relevant texts between, for instance, the universities of Erfurt, Prague, and Cracow, are to a large extent still unresearched[72]. Peter's *De congruitate* and its connection to the curriculum at Prague University is of supreme importance for this matter. This link becomes even more apparent when we consider the wider context of its transmission.

Even though the three copies in which Peter's *De congruitate* survives do not display textual similarities, the content of one of them is revealing. It is the Prague copy, MS Prague, NK ČR, V H 21, that belonged to the Charles College

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68 For more, see I. Rosier-Catach, *La parole comme acte. Sur la grammaire et la sémantique au XIIIe siècle*, Paris, Vrin, 1994.

69 Šmahel, "The Faculty of Liberal Arts 1348–1419", in Šmahel, *Die Prager Universität im Mittelalter*, p. 218.

70 K. Krauze-Błachowicz, "*Modi significandi* in Johannes Glogoviensis' Grammar", in *Mediaevalia. Textos e estudos*, 23 (2004), p. 84.

71 Kneepkens, "Some Notes on the Revival of Modistic Linguistics", p. 71.

72 The exception is the Polish tradition and revival of speculative grammar, researched by Krystyna Krauze-Błachowicz, see e.g. her *Jan z Głogowa i tradycja gramatyki spekulatywnej*, Warsaw, Wydawnictwo Naukowe *Semper*, 2008. I would like to thank prof. Krauze-Błachowicz for discussing and sharing her invaluable insights into Prague – Cracow modistic connections with me.

library, and contains several grammatical treatises, including an excerpt from John Balbi of Genoa's *Catholicon*, John of Vlhlavy's commentary on Donatus[73], an anonymous *Tractatus de constructione grammaticali* (inc. *Circa materiam construccionis*), the *Flores grammaticae* by Ludolphus de Luco from Hildesheim[74], an anonymous *Thesaurus grammaticalis de structura* (inc. *Emo condigno puerilia dogmata signo*), and the closing part of Thomas of Erfurt's *De modis significandi*. This part of Thomas's tract is considered a self-contained *Tractatus de constructione partium orationis*, with an incipit *Ad cognoscendum naturam constructionis*[75]. It is worth noting that this text survives independently in six copies, all of which are of Bohemian provenance[76].

This peculiar selection of texts is similar to other medieval codices of Prague provenance. Namely, MS Prague, NK ČR, V H 28 (which can be dated to 1433) contains a commentary on Thomas's mnemonic verses for teaching grammar to schoolboys, the *Fundamentum puerorum*[77], a commentary on Donatus, a versified commentary on construction by John of Lauburg *Compendium metricum* (inc. *Tu qui naturas structure queris et optas*)[78], a versified textbook *Precepta scolarium* with a commentary and Czech glosses[79], an excerpt from Peter of Dresden's *Parvulus logicae*, the *Flores grammaticae* by Ludolphus de Luco from Hildesheim, and the anonymous *Thesaurus grammaticalis* (both of which were also copied in the above-described MS Prague, NK ČR, V H 21), and last but not least John of Netolice's versified *Compendium de speciebus constructionis* with a commentary.

Similar treatises appear also in MS Prague, KMK, M 84: here, an unknown copyist in the early 1450s wrote down several, often versified grammatical texts, including John of Netolice's versified *Compendium* (with a colophon 1452), John of Lauburg's *Compendium metricum*, an anonymous *Thesaurus grammaticalis*, a commentary on Thomas's *Fundamentum puerorum* as well as his rhythmical *Compendiollum de regimine et constructione* (inc. *O pater ob natum*) with a commentary, and the *Flores grammaticae* by Ludolphus de Luco from Hildesheim. The majority of these texts appear in the two aforementioned codices as well. It is evident that these texts were copied, read and commented upon together. Since one of the above-described codices was once in the possession of the Charles College library of

73 John of Vlhlavy became a bachelor at Prague University in 1409 (*Liber decanorum facultatis philosophicae Universitatis Pragensis*, pars I, p. 404, 406); nothing more is known about his literary activity. The same commentary survives in a manuscript from the same collection: MS Prague, NK ČR, X E 15, fols 1r–93r (copied in 1477).

74 *Verfasserlexikon*, vol. 5, col. 965–967.

75 *Verfasserlexikon*, vol. 9, col. 852. See also P. Lehmann, "Mitteilungen aus Handschriften VIII. Zu den sprachlogischen Traktaten des Mittelalters", in *Sitzungberichte der Bayerischen Akademie der Wissenschaften, Philosophisch-historische Abteilung*, 1944–2 (1944), p. 7.

76 The MSS shelf-marks are the following: Prague, NK ČR, IV E 18, fols 309r–327r; Prague, NK ČR, V H 21, fols 169r–189r; Prague, NK ČR, X F 24, fols 91r–122r; Prague, KMK, M 84, fols 1r–36r; Prague, KMK, M 199, fols 16r–57r; Prague, KMK, M 132, fols 124r–151r.

77 *Verfasserlexikon*, vol. 9, col. 855.

78 *Verfasserlexikon*, vol. 4, col. 668.

79 A. Vidmanová, "Mittellateinische Lesebücher im Lichte der Textkritik", in *Graecolatina et orientalia*, 5 (1973), p. 187–188.

Prague University, it seems indicated that they circulated in this milieu. Nevertheless, it is impossible to decide whether they were copied as textbooks by students, or whether they were intended for teachers.

4. Conclusion

An examination of Peter of Dresden's *De congruitate grammaticali* and the wider context of its manuscript transmission proved that the text was connected with university instruction in Prague. This is corroborated by other minor points, such as the fact that some of the copies contain commentaries on the text, or that it was not intended for easy memorization as it was not versified. Moreover, unlike in Dresden, Peter's text was targeted at a university audience, and not for elementary instruction in Latin, as the connection to modism proves beyond doubt. For the matter at hand, the link between the still popular modistic grammar and Peter's treatise can be understood, after all, as evidence for his innovative teaching activities in Prague. Peter's short, clear and extraordinarily well-organized text shows no signs of a radical doctrine, and perhaps it was these qualities that rendered its popularity as a university textbook possible. What might also be interesting is that the aforementioned *Parvulus philosophiae naturalis*, supposedly written by Peter and certainly connected with teaching, was popular because of the very same qualities, i.e. as a conveniently concise exposition of the main points of Aristotelian natural philosophy[80].

The survey has also revealed that the link between the universities of Erfurt, Prague, and Cracow might be stronger than previously thought in terms of grammar instruction. The intricate transmission of Thomas of Erfurt's texts in Prague adds weight to this supposition. Nicholas of Dresden, next to Peter the most famous representative of the Dresden School, studied at Erfurt University. Is it possible that the circle of the Dresdeners played an active role in the circulation and transmission of some of the relevant texts? This, in consequence, would be indicative of the assumed existence of the Dresden School. Much more research into manuscript material is needed to take this issue any further.

By making a grammatical treatise related to the modistic grammar available in a critical edition, this study aims to facilitate much-needed research on fifteenth-century grammar in general. More specifically, it attempts to contribute to a better understanding of the peculiarities of grammar instruction at Prague University, and the connection between the Dresden School and Prague University.

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80 A. R. Verboon, "Transmitting school-philosophy. Thomistic commitments regarding sense perception in a 15th-century Cologne student manuscript", in E. Lutz, N. Eichenberger, C. Putzo (eds.), *Bücher und Identitäten. Literarische Reproduktionskulturen der Vormoderne*, Wiesbaden, Reichert Verlag, 2017, p. 1–43.

Appendix
Critical Edition of Peter of Dresden's *De congruitate grammaticali*

Ratio edendi

As described above, Peter's *De congruitate* survives in three manuscripts (for their sigla, see below). The text in *H* was written cursorily by one scribe, there is no title or initials and the plain layout is embellished only by division into paragraphs.

The text in *M* was copied by two scribes, the first one writing c. 70% of the text (fols 144r–145r), the second one the remainder (fols 145r–145v), starting with the discussion on construction. The text is accompanied in several places by marginal glosses and short commentaries that were added by a different hand later. Since these glosses and commentaries appear only in this copy, they do not seem to be an integral part of the text and are therefore not recorded in the apparatus. On a few occasions, these glosses are indicated in the text in the form of superscriptions – these are not recorded either. At the beginning, there is space left for an initial (fol. 144r), which reveals that this copy was made by a professional scribe.

Manuscript *O* was copied by one scribe. Subsequently, another hand supplied a commentary at several places on the first page (fol. 19r) and two more shorter comments elsewhere in the text. These are different from the glosses in *M*, and therefore are not recorded in the apparatus either. The layout of the text implies that space was left for subsequent commentary. Initials subdivide the text in this copy into three sections: the very beginning (fol. 19r), the second on the order of structural parts (fol. 20v), and the last on construction (fol. 21r). This also indicates copying in a professional environment.

The edition is based on manuscript *H*, which contains a colophon 1415 and an attribution to Peter of Dresden at the end of the text. Manuscripts *M* and *O* lack not only this, but also a longer part of the conclusion. The fact that there is blank space left in both of these copies confirms that they were copied from a (possibly complete) model, and suggests that both copies were meant to be finished. *M* omits just a few lines at the end, while the text in *O* is abruptly finished in the middle of a discussion on transitive constructions. Moreover, a reference to the agreement between a subject and a predicate (*suppositum et appositum*) in the opening paragraph of the text appears only in manuscript *H* and is lacking in *M* and *O*. This issue is later referred to in all three copies (*ut supra dictum est*), and therefore must be considered an integral part of the original. Hence the reading of *H* is the most authentic one for the beginning of the text. There are, however, other, significant reasons for choosing *H* as the basis for the edition.

The collation of all three copies showed that they vary to a large extent in their readings and that none could have been copied directly from another. Manuscript *M* contains the most omissions (39% of all cases), all of which are unique, even though they are not of a significant character. The same holds true for the omis-

sions in manuscript *O*. It should be stressed that 80% of all omissions are singular readings of one copy only, while the remaining 20% are omissions shared by manuscripts *M* and *O*.

Variant readings can be divided into cases of additions, changes to the word order, and entirely different wordings. The changes in the word order are of little importance regarding their significance and frequency (9%). The cases where individual copies add to the reading of the base text (37%) or where they bring entirely different readings (54%) are more telling. Among the additions, the majority represent unique additions of manuscript *O* (almost 60%): These often have to do with a better or clearer structuring and/or meaning of the text. Many of these additions are further examples of the discussed grammatical issues and are only exceptionally of inferior quality. The variant readings are represented almost entirely by singularly appearing cases. Here, the most frequent are the variants of *O* (41%), followed by shared readings of the group *MO* (30%), and individual unique readings of *M* (25%).

Based on the above, there is an apparent division between manuscript *H* and the group *MO*. Common readings of manuscripts *M* and *O* are both numerous and significant: as noted above, there is a high number of shared omissions, variant readings (*liber Nicolai* x *liber Henrici*; *bene legenti* x *scribenti*) and additions. The fact that both the beginning and the end of the text are different (i.e. incomplete) in *M* and *O* is in line with this assumption. Nevertheless, in all probability they were not copied from a common model, as shown, among other things, by several variants in their word order. Moreover, some of the scribal errors reveal that *H* and *M* were copied from a common ancestor: e.g. when the modes of governance of oblique cases are described, only manuscript *O* has the correct reading (*modo specialiori*), while the scribe of *H* added as superscription the word *significandi* (surely due to confusion arising from the immediate context), which is recorded in the same way in *M*, but there the scribe subsequently deleted the redundant *significandi*. Also, towards the end of the text, unique readings of *O* and additions to grammatical examples appear more frequently. There are also several cases where *M* stands in opposition to *H* and *O* that cannot easily be explained as pure scribal inadvertence. *M* contains a colophon 1410 at several places of the codex, and thus seems to be the oldest surviving copy of Peter's *De congruitate* – yet even this is a derivative copy, as can be judged from several scribal mistakes (*verbi personalis* instead of the correct *impersonalis*), deletions and the confused order of several sentences, as well as the missing end. The apparatus therefore records all the variant readings and offers a full picture of the richness of the divergence of the manuscripts.

In sum, all three manuscripts were apparently copied from different models, the manuscripts *M* and *O* being genetically closer to each other. The results of the collation of all three copies justify the selection of *H* as the base text. The variant readings of the other two copies are recorded in the apparatus of the edition. The wording of *H* is therefore followed throughout, with a few exceptions when it is proved incorrect (in such cases the reading of *M* appears in the main text). The orthography of *H* provides the norm of the text. The scribe of this copy uses typical medieval spellings (assibilation of *ti-* and *ci-*, diphthongs written as *-e-*, reintroduc-

tion of intervocalic *-h-*, generally not assimilated forms) which are characteristic of the other two copies as well. Graphical variants of individual copies and obvious scribal errors are not recorded in the apparatus.

References to the grammatical issues or examples discussed in the text are marked by italics. Direct references to authorities are identified in the apparatus and placed within quotation marks. The ubiquitous and common allusions to standard medieval grammar authorities are not registered.

Conspectus auctoritatum

Alex. Villa Dei, *Doctr.* = Alexander de Villa Dei, *Doctrinale. Kritisch-exegetische Ausgabe. Mit Einleitung, Verzeichniss der Handschriften und Drucke nebst Registern*, ed. D. Reichling, Monumenta Germaniae pedagogica, vol. 12. Berlin, A. Hofmann & Comp., 1893.

Don., *Ars min.* = Aelius Donatus, *De partibus orationis ars minor*, ed. H. Keil, Grammatici Latini, vol. 4, Leipzig, Teubner, 1864, p. 355–366.

Don., *Gramm.* = Aelius Donatus, *Ars grammatica*, ed. H. Keil, Grammatici Latini, vol. 4, p. 367–402, Leipzig, Teubner, 1864.

Prisc., *Inst. gramm.* = Priscianus Caesariensis, *Institutionum grammaticarum libri XVIII*, eds. M. Hertz, H. Keil, Grammatici Latini, vol. 2–3, Leipzig, Teubner, 1855–1859.

Conspectus siglorum

H MS Prague, NK ČR, V H 21, fols 166v–167v
M MS Mainz, Stadtbibliothek, HS I 528, fols 144r–145v
O MS Prague, KMK, O 43, fols 19r–21r

Conspectus abbreviationum

om. = *omisit* (omitted)
suprascr. = *suprascripsit* (wrote above)

<Petrus Dresdensis>
<De congruitate grammaticali>

| Congruitas grammaticalis consistit in debita proporcione modorum significandi constructibilium. H 166v M 144r O 19r

Constructibilia sunt multiplicia. Alia sunt adiectivum et substantivum et illa debent convenire in numero, genere et in casu, ut: *Homo albus*. Alia sunt suppositum et appositum et illa inquantum talia debent convenire in numero et in persona et secundum antiquos in rectitudine. Et secundum hoc ibi duplex est regimen, scilicet suppositum et appositum, regens et rectum, ut: *Homo currit*. Alia sunt antecedens et suum relativum et illa debent convenire in numero, in genere et in persona, ut: *Ego sum, qui sum*. Alia sunt quesitum et responsivum, que, si sint casualia, debent convenire in casu, ut: *Quis currit? Petrus*. Alia sunt regens et rectum, que debent proporcionari in aptitudine casuali. Et sic patet, quod nichil regitur nisi casus.

Casus est diccio significans in rectitudine vel in obliquitate, et sic habetur duplex casus, scilicet rectus et obliquus.

Rectus significat per modum rectitudinis et est duplex, scilicet nominativus et vocativus.

Nominativus significat simpliciter per modum rectitudinis. Sed quia omnis casus regitur ex vi modi sui significandi proprii, consequens est, quod omnis nominativus regitur ex vi rectitudinis. Et hoc dupliciter: A parte ante et hoc modo specialiori regitur a verbis personalibus ex vi persone, id est ex vi suppositi. Persona enim, ut hic nobis sufficit, capitur duobus modis: unomodo pro accidente parcium oracionis, ut supra dictum est de supposito et apposito; aliomodo capitur pro supposito vel saltem pro diccione | significante rem per se vel tamquam per se existentem, ut hic et in secunda parte dicitur, ibi: "Personam dum pertineant ad eandem", O 19v

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12 Ego – sum²] Ex. 3, 14 | **28** Personam – eandem] Alex. Villa Dei, *Doctr.* 8, 1080 (p. 71)

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3 grammaticalis] *om. M* | **5** Constructibilia] Nota: constructibilia *M* | **6** illa] talia *O* | numero genere] genere et in numero *M*, genere, in numero *O* | **7** illa] illa debent convenire *MO* | talia] talia dupliciter inquantum talia ad excludendum regimen *H* | **7/8** debent convenire] *om. MO* | **8/10** et² – currit] *om. M* | et² – rectum] *om. O* | **11** in²] et in *MO* | et²] et ut quidam volunt *M*, ut quidam volunt *O* | **12** sint] sunt *M* | **13** ut – Petrus] *om. M* | Petrus] et respondetur: Petrus *O* | Alia] Et alia *M* | **14** que] et illa *O* | proporcionari – aptitudine] convenire in debita proporcione modorum significandi *M* | casuali] casuali regentis et recti *O* | **16** est] autem est *MO* | in²] *om. MO* | **16/17** sic – duplex] ex hoc patet quod duplex est *O* | **20** Sed] Et *MO* | **22** regitur] regatur *O* | **23** et] *om. M* | **24** enim] *om. M* | **25/26** ut – est] ut patet ibi supra *O* | dictum est] *om. M* | **26** capitur] *om. M* | **28** hic et] *om. O* | dicitur] *om. MO* | pertineant] pertineat *M*, pertinet *O* | ad eandem] etc. *suprascr.* ad eandem rem *M*

et eciam ibi: "Constructio transitiva personarum". Hinc dicitur verbum personale et inpersonale, que sic differunt, quia verbum personale est, per quod dicimus vel exprimimus accionem vel passionem seu modum significandi ipsius verbi, prout procedit ab aliqua persona, id est a supposito. Sed verbum inpersonale est, per quod exprimimus significatum verbi non habendo respectum ad aliquam personam, id est ad suppositum, ut: *Legitur leccionem*. Et hoc patet manifeste per Priscianum, qui loquens de construccione verbi inpersonalis obliquos omnes ponit post verbum, ut: *Opportet me currere*. Sed a parte post regitur ex vi nature, id est ex vi copulacionis. Et sic patet, quod nominativus modo generali regitur ex vi modi significandi, | modo speciali regitur ex vi modi significandi casualis, modo M 144v autem specialiori regitur ex vi rectitudinis, modo autem specialissimo regitur a parte ante ex vi persone, a parte post ex vi nature.

Vocativus significat per modum rectitudinis sub racione imperii seu excitacionis, ideo regitur a verbis imperativi modi a parte ante ex vi rectitudinis sub racione imperii seu excitacionis, ut: *Petre, lege*.

Obliquus significat per modum obliquitatis et est quadruplex, scilicet genitivus, qui significat per modum ut *cuius*, et sic omnis diccio significans sub racione ut *ipsum est alterius* regit genitivum significantem *cuius* ex vi modi significandi ut *alterius*, ut: *Liber Nicolai*. Sed dativus significat per modum ut *cui*, igitur omnis diccio | significans sub O 20r racione modi significandi ut *alteri* regit dativum significantem *cui* ex vi modi significandi ut *alteri*, ut: *Similis tibi*. Sed accusativus significat per modum ut *quem*, ideo omnis diccio significans sub racione ut *alterum* regit accusativum casum significantem *quem* ex vi modi significandi ut *alterum*. Ablativus significat per modum ut *quo*, omnis ergo diccio significans sub racione ut *altero* regit ablativum casum significantem *quo*

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29 Constructio – personarum] cfr. Alex. Villa Dei, *Doctr.* 9, 1369–1389 (p. 87–88) | **35** Priscianum] cfr. Prisc., *Inst. gramm.* 18, 51–67 (vol. 3, p. 229–235)

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29 transitiva] *om. H* | **31** accionem] actum *MO* | vel[2]] et *O* | **32** ab – supposito] a supposito, id est ab aliqua persona *M*, a supposito et eciam ab aliqua persona *O* | **34** aliquam] *om. MO* | **35** hoc] *om. H* | **36** inpersonalis] personalis *M* | obliquos omnes] que omnes obliquos casus *O* | verbum] verba *MO* | **36/37** ut – currere] *om. M* | **37** currere] legere *O* | nature] nature verbi *O* | **39** modo – casualis] *om. O* | modo[1]] modo autem *M* | regitur] *om. M* | significandi[2]] *om. H* | **39/40** modo autem] sed modo *MO* | **40** regitur] *om. M* | **41** regitur] *om. M* | a[2]] et a *O* | **44** seu excitacionis] *om. MO* | lege] lege. Eodem modo regitur a verbis imperativi modi a parte ante ex vi modi rectitudinis, ut supra *H* | **45** per modum] sub modo *M* | **46** et sic] ideo *O* | **47** genitivum] genitivum casum *O* | **48** cuius] ut cuius *O* | modi] *om. H* | Nicolai] *H*enrici *MO* | **49** igitur] ideo *O* | **49/50** sub – significandi] per modum sub racione *O* | **50** alteri] ipsum est alteri *O* | dativum] dativum casum *O* | cui] ut cui *O* | **51** Sed] *om. MO* | **53** quem] ut quem *O* | **54** alterum] quem *M*, alterum, ut: Lego leccionem *O* | omnis ergo] ideo omnis *O* | ergo diccio] diccio ergo *M* | **55** casum] *om. M* | quo] ut quo *O*

ex vi modi significandi ut *altero*, ut: *Scribo penna*. Modo igitur generali obliqui reguntur ex vi modi significandi, sed modo speciali reguntur ex vi modi significandi casuali, sed modo specialiori reguntur ex vi modi significandi obliquitatis, modo autem specialissimo quilibet obliquus regitur ex suo modo proprio significandi; que tamen subdividuntur, ut patet in secunda parte. Absolvere autem casum est ipsum ponere circa diccionem, cum qua non proporcionatur in modo significandi casuali.

Alia constructibilia sunt verbum | finitum cum verbo infinitivi modi, H 167r
que debent proporcionari in modo significandi verbi finiti et infiniti, scilicet quod verbum finitum significet modo generali, quem infinitivus determinat, et sunt verba talia, scilicet proheretica, id est elleccionem inportancia, ut: *Volo legere*. Alia sunt constructibilia verbum et adverbium et illa debent proporcionari in modo significandi adverbiali. Alia sunt coniunccio et | coniungibilia, que debent proporcionari in modo significandi O 20v
coniungibili. Alia sunt verbum et preposicio, que debent proporcionari in modo significandi retorquibili. Alia sunt interieccio cum verbo, ut: *Heu morior*, | que debent proporcionari in modo significandi determinantis M 145r
afficientis animum gaudio vel dolore etc.

Circa ordinacionem constructibilium est prima regula ista: Casus rectus intransitive debet precedere suum regens exceptis casibus rectis intransitive a parte post a verbis substantivis, vocativis vel eorum vim habentibus. Secunda regula: Casus rectus transitive debet sequi suum regens exceptis obliquis istorum *quis, qualis* etc. Tercia regula: Determinacio debet poni circa suum determinabile inquantum propinquius potest. Quarta regula: Quando adiectivum est magis conmune quam substantivum, tunc ipsum debet precedere; quando autem est minus conmune, debet sequi; si autem habet se indifferenter, potest se ordinare indifferenter. Quinta regula: Quando sunt plures determinaciones et unum determinabile tantum et iste determinaciones non possunt se mutuo determinare, tunc non refert unam ponere ante aliam; si autem

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61 in – parte] cfr. Alex. Villa Dei, *Doctr.* 8, 1131 sqq. (p. 73–87)

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56 altero] quo *M* | igitur] *om. O* | **57** sed] *om. O* | **58** modo] modo *suprascr.* significandi *H* | **60** ex] a *O* | proprio significandi] significandi proprio *O* | que] qui *MO* | **60/61** ut patet] *om. O* | **61/62** circa diccionem] cum diccione *O* | **63** constructibilia sunt] sunt constructibilia *O* | **65** finitum] finitum et infinitum *O* | significet] significat *MO* | **66** sunt – scilicet] talia verba sunt *O* | id est] et *O* | **67** constructibilia] *om. MO* | **69** que] et illa *O* | proporcionari] proporcionare *O* | **70** que] et illa *O* | **72** determinantis] *om. O* | **73** afficientis] efficientis *O* | gaudio – dolore] gaudium vel dolorem *H* | etc] *om. MO* | **74** est – regula] prima regula est *O* | **75** rectus] regens *O* | **78** etc] quantus *O* | **79** inquantum] dequanto *M*, determinando in quantum *O* | **81** precedere] precedere, exemplum: bipedalis homo *O* | **82** debet] tunc debet *O* | se[2]] *om. MO* | ordinare] ordinari *M* | **83** indifferenter] indifferenter, exemplum: homo grammaticus *O* | **85** determinare] determinari *M*

mutuo inter se una possit determinare aliam, tunc multum refert eas | ponere taliter vel taliter. Exemplum primi: *Lego tibi bene leccionem*. O 21r
Exemplum secundi: *Lego bene legenti leccionem*. Regule alie plures ponuntur in secunda parte etc.

Construccio est constructibilium unio ad exprimendum mentis conceptum adinventa. Et est duplex: transitiva, alia intransitiva.

Transitiva est, in qua constructibilia significant diversa vel tamquam diversa. Et est duplex: Transitiva simplex et est, in qua constructibilia significant diversa vel tamquam diversa simpliciter. Alia retransitiva, in qua coniunguntur due transitive per coniunccionem *quod* vel *quatenus* vel ipsis similem ita, quod nominativus in prima mutatur in obliquum in 2ª et obliquus in prima in nominativum in secunda, ut: *Socrates diligit Platonem*, ut: *Plato instruat ipsum*.

Intransitiva est, in qua constructibilia significant idem vel tamquam idem et est duplex: Alia intransitiva simplex et est, in qua constructibilia significant idem simpliciter, ut: *Homo est animal*. Alia est reciproca et est, in qua actus vel persona reciprocatur in obliquum reciprocum suppositi, ut: *Socrates diligit se*.

Similiter alia est transitiva actuum, in qua obliquus regitur a verbo transitivo vel ab eius participio cum preposicione | vel sine preposicione, M 145v
quocumque modo contingit. Alia transitiva personarum, in qua obliquus regitur ab aliis partibus oracionis.

Et eodemmodo intransitiva est duplex, scilicet intransitiva actuum, in qua verbum adiectivum vel eius participium construitur sine obliquo. Et intransitiva personarum est, ubi verbum substantivum vel vocativum vel eorum vim habens construitur cum similibus casibus a parte ante et a parte post etc.

Item perfectum dicitur a *perficere*, quod conponitur a *per* et *facio*. Facere autem est formam in materiam introducere, sed perficere est totam formam in totam materiam introducere. Inde oracio perfecta, in qua tota forma est introducta in totam materiam, id est ubi nichil deficit nec de forma neque de materia.

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89 in – parte] cfr. Alex. Villa Dei, *Doctr.* 9, 1369–1549 (p. 87–99)

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86 possit] posset *O* |multum] multociens *O* | **88** secundi] secundi ut *M* | bene legenti] scribenti bene *O* | legenti] scribenti *M* | **88**/**89** Regule – etc] *om. M* | **88** Regule – plures] Alie regule *O* | **89** etc] *om. O* | **91** duplex] alia *MO* | **92** est] *om. M* | **93** Transitiva] Alia transitiva *MO* | et² est] *om. MO* | **94** Alia] Alia est *O* | retransitiva] transitiva retransitiva *M* | **95** quod] ut *O* | vel²] aut *MO* | **96** in¹ prima] primo *O* | **96**/**132** in³ – XVo] *om. O* | **100** est¹] similiter est *M* | **101** significant – simpliciter] simpliciter significant idem *M* | et est] *om. M* | **105** transitivo] transitive *H* | ab] *om. M* | **106** contingit] contingat *M* | **110** est] *om. M* | vel vocativum] etc. *H* | **111** a – et] *om. H* | **112** etc] *om. M* | **113** Item] *om. M* | **116** neque] nec *M*

Et forma oracionis est copula, que est duplex, scilicet verbalis, que est sic precipua, quod sine ea nulla oracio est perfecta. Alia coniunccionalis, que est minus precipua, quia sine ea oracio potest esse perfecta. Alie autem partes oracionis sunt materiales. Copula verbalis est unica tantum, que iungit duo extrema ad standum pro eodem. Sed coniunccionalis copula est multiplex, ut pater per Donatum. Quandocumque tamen in aliqua oracione plures reperiuntur copule, quarum una est principalis, scilicet illa, que coniungit duo extrema continencia totam oracionem, alia est | minus principalis, scilicet que coniungit partes parcium principalium. Est eciam regula: Quando plures determinaciones determinant idem determinabile diversimode, debet poni sine coniunccione, ut: *Leget cras bene*. Sed quando determinant idem determinabile eodemmodo, debent poni cum coniunccione, ut: *Leget hoc die et cras* etc. H 167v

Et sic est finis tractatuli grammaticalis magistri Petri de Dresden anno XV°.

123 Donatum] cfr. Don., *Ars min.* (p. 364–365); *Gramm.* 2, 15 (p. 388–389)

118 Et] *om. M* | **119** oracio est] est oracio *M* | Alia] Alia est *M* | **122** iungit] coniungit *M* | ad] ad inficem ad *M* | coniunccionalis copula] copula coniunccionalis ista *M* | **123/132** Quandocumque – XVo] *om. M*

PAVLÍNA CERMANOVÁ

The Circulation of the Pseudo-Aristotelian *Secretum secretorum* in the scholarly Centers of the Medieval Czech Lands*

Introduction

In the Middle Ages, the pseudo-Aristotelian *Secretum secretorum* (*Book of Secrets*) enjoyed an exceptionally widespread circulation, both in its Latin and vernacular versions. Its great popularity over the course of the period resulted partly from its pretended history, i.e. that it originated as a letter penned by Aristotle, giving advice to Alexander the Great during his military campaign in Persia. It covers information on a range of topics, including statecraft, the natural sciences, medicine, and health[1], amounting to a combination of personal handbook and princely mirror, in which the philosopher provides the sovereign with advice on how to rule others and how to rule himself. Philip of Tripoli, the translator of the complete text

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1 An edition of the text appears in *Opera hactenus inedita Rogeri Baconi. Fasc. V. Secretum secretorum cum glossis et notulis*, ed. R. Steele, Oxford, E Typographeo Clarendoniano, 1920, p. 25–172. For manuscripts cf. C. B. Schmitt, D. Knox, *Pseudo-Aristoteles Latinus. A Guide to Latin works falsely attributed to Aristotle before 1500*, London, Warburg Institute, 1985, p. 54–75. For basic information on the text, see R. Goulet, J.-M. Flamand, M. Aouad (eds.), *Dictionnaire des Philosophes antiques*. Supplément, Paris, CNRS, 2003, p. 648–651. See also N. Kretzmann, A. Kenny, J. Pinborg, E. Stump (eds.), *The Cambridge History of Later Medieval Philosophy. From the Rediscovery of Aristotle to the Disintegration of Scholasticism 1100–1600*, Cambridge, Cambridge University Press, 1982, p. 58, 60. An important volume on the origin, diffusion and influences of the *Secretum secretorum* is W. F. Ryan, C. B. Schmitt (eds.), *Pseudo-Aristotle, The Secret of Secrets: sources and influences*, London, Warburg Institute, 1982. For the dissemination of the *Secretum* in Western Europe, see M. Grignaschi, "La diffusion du *Secretum secretorum* (*Sirr-al-'Asrar*) dans l'Europe occidentale", in *Archives d'Histoire Doctrinale et Littéraire du Moyen Âge*, 47 (1980), p. 70. See also S. Williams, *The Secret of Secrets. The Scholarly Career of a Pseudo-Aristotelian Text in the Latin Middle Ages*, Ann Arbor, University of Michigan Press, 2003; C. Gaullier-Bougassas, M. Bridges, J.-Y. Tilliette (eds.), *Trajectoires européennes du* Secretum secretorum *du Pseudo-Aristote (XIIIe–XVIe siècle)*, Turnhout, Brepols, 2015.

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from Arabic into Latin, even says, with more than a little exaggeration, that the text "contains something useful about almost everything"[2]. All in all, the *Secretum secretorum* – with its teachings on political matters, medicine, physiognomy, astrology, magical gems, and the uses of herbs, stones, and amulets – was a concise compendium of general information, as useful to a ruler as to anyone else. Its thematic diversity, a mixture of the marvelous and the prosaic, may be considered another reason why the text was among the most popular and broadly diffused treatises of the Middle Ages.

This widespread dissemination also included the Czech Lands. Using manuscript and other sources, it will be shown that the *Secretum secretorum* was read and used in different milieux in Bohemia, including the University of Prague. The modest initial diffusion of the treatise was augmented substantially in the second half of the fourteenth century, as the royal court, the newly established university, and monasteries grew as dominant centers of learning. In the fifteenth century, the Hussite wars led to the transformation of these traditional intellectual centres, and thus of the Bohemian tradition of the *Secretum secretorum* as well. In studying the diffusion and reception of the *Secretum secretorum* in the medieval Czech Lands and its position in the educational and academic milieux, this paper will examine who its readers were and how the text was used for educational purposes; the contexts of its dissemination and reception, including its position in university lectures; the presence or absence of commentaries; and its impact on various fields of knowledge (e.g. political science, medical science, and others.). The aim is to fill an important research gap: while the early history (twelfth and thirteenth centuries) of the Latin *Secretum secretorum* has been well covered by modern scholars, and the text's later history in Western Europe is also well-studied, its history in Central Europe has not received much attention at all[3].

1. The *Secretum secretorum* in Medieval Bohemia

The influence of the *Secretum* can be detected in various environments. In courtly culture, as part of the mirror of princes literature, it was copied and illuminated for European rulers or aristocrats. The text also became a part of the Aristotelian *Corpus vetustius* and *Corpus recentius* quite early on, as certain preserved manuscripts reveal[4]. It was taught at universities, and the version translated by John of Seville was also incorporated into medical compendia; from the thirteenth century onward, it was quoted regularly in encyclopedic works, including those by Albert the Great, Vincent of Beauvais, and Thomas of Cantimpré. John of Seville's translation even

2 *Opera hactenus inedita*, p. 26: "Ideo dignum fuit ut haberet vestra clemencia librum presentis operis, in quo fere de omnibus aliquid utile continetur."

3 A good start on this topic was made by É. Adde-Vomáčka, "Le Secret des secrets dans les pays tchèques du XIIIe siècle", in *Trajectoires européennes du* Secretum secretorum, p. 427–447, but much more can be said.

4 Williams, *The Secret*, p. 183–190.

found its way into a famous collection of short medical texts, the so-called *Articella*, which constituted the basis for university medical education[5]. As is well known, toward the middle of the twelfth century a great intellectual change began, opening a new epoch in which ancient Greek and more recent Arabic and Jewish thought and science became available to the Latin West and gradually also to Central Europe[6]. The same pattern was followed by the *Secretum secretorum,* which was thus translated into Latin precisely at the time when new knowledge from scholarly fields such as astrology, alchemy, and magic was being transmitted from the Arabic intellectual milieu, enriching the horizon of European universities[7].

In Bohemia, the *Secretum* is preserved in its entirety or in part in more than sixty Latin copies, though only a few of these date back to the period before the University of Prague's foundation. Both the translation of John of Seville and the version of Philip of Tripoli are found in the Czech Lands, and both versions seem to have been disseminated and assimilated fairly quickly. In addition to the Latin transmission, there is also evidence of a German adaptation[8] and two versions of a Czech translation preserved together in four manuscripts[9]. There are several preserved commentaries on this treatise, the majority related to the medicinal part of the text. Finally, it is possible that a Hebrew translation circulated in Prague at the end of the fourteenth century, and that Hebrew intellectuals in Prague adopted the text, as there is a manuscript connected with Rabbi Avigdor Ḳara which contains a diagram, also known as The Circle of Justice, copied from the *Secretum secretorum*[10].

A copy of the *Secretum secretorum* might have arrived in Bohemia very early, with the curialist Albert Behaim (c. 1190 – c. 1260)[11], who included Philip's translation in his personal notebook (*Memorialbuch*). Behaim probably had the copy of the *Secretum* made when in Lyon during or shortly following the Council of Lyon in 1245. The *Memorialbuch* contains what is considered to be the oldest extant copy of the Philip of Tripoli's translation. Behaim was a curialist, a papal legate, and a supporter of Popes Gregory IX and Innocent IV against the Holy Roman Emperor, Frederick II. It seems very probable that he visited Prague three times be-

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5 Williams, p. 187.

6 For the "discovery" of the *Secretum* in the context of the transmission of knowledge from East to West, see D. Knowles, *The Evolution of Medieval Thought*, London / New York, Longman, 1988², p. 168.

7 W. Kluxen, *Aspekte und Stationen der mittelalterlichen Philosophie*, Paderborn, Schöningh, 2012, p. 383–385.

8 R. Forster, *Das Geheimnis der Geheimnisse. Die arabischen und deutschen Fassungen des pseudo-aristotelischen* Sirr al-asrār/Secretum secretorum, Wiesbaden, Dr. Ludwig Reichert Verlag, 2006, *passim*.

9 MS Prague, Knihovna Královské kanonie premonstrátů na Strahově, DG V 21; MS Prague, Archiv University Karlovy, B 1; MS Prague, NK ČR, XVII G 11; MS Prague, KMK, N 1697.

10 MS Cambridge, University Library, ms. Add. 393, fol. 2v. I would like to thank Milan Žonca for providing me with this piece of information. See also M. Žonca, "Několik poznámek k intelektuálnímu profilu Avigdora Kary [Several Remarks on the Intellectual Profile of Avigdor Kara]", in D. Boušek, M. Křížová, P. Sládek (eds.), *Dvarim meatim*: *Studie pro Jiřinu Šedinovou*, Praha, Filozofická fakulta Univerzity Karlovy, 2016, p. 35–56.

11 MS Munich, Bayerische Staatsbibliothek, Clm 2574b. Cf. *Das Brief- und Memorialbuch des Albert Behaim*, eds. T. Frenz, P. Herde, München, MGH, 2000.

tween 1240 and 1254, and spent some time there in a diplomatic capacity[12]. Albert, undoubtedly very educated and culturally influential, also held the benefice of the Olomouc chapter. Given that his *Memorialbuch* almost certainly accompanied him during his visits to Bohemia, it might have been Albert himself who brought the first awareness of the *Secretum secretorum* here in the thirteenth century.

The complicated textual tradition and the large number of variants make it very difficult to classify the particular text groups and distinguish lines of manuscript affiliations. Both in the Latin and in the vernacular, medieval scribes and editors made significant changes to the text either to strengthen or suppress (un-) privileged topics. This can be seen even in the oldest copies of Philip of Tripoli's translation: some paragraphs were missing in several manuscripts, especially those concerning the medical and magical sections[13]. As for the Czech tradition, it is clear that the oldest manuscripts of Bohemian provenance are copies of Philip of Tripoli's translation belonging to different yet similar textual branches[14]. For example, MS Prague, NK ČR, VIII C 22, which belonged to the library of the college of the Bohemian nation at the University of Prague, stands very close to Behaim's redaction. The part concerning snakes (*De viperis*) is missing; the paragraphs on phlebotomy follow the recipe for preparing the ninth medicine, which is the order corresponding to that of Behaim's version[15]. Likewise, the part focused on the eyes (*De malis oculorum et eorum remedia*), written originally by Rhazes, is also missing in both the Prague manuscript and Behaim's redaction. In both Behaim and MS Prague, NK ČR, VIII C 22, the section on testicles (*De testiculorum infirmitate et eius remedio*) follows the passage on eyes[16]. Another manuscript which belonged to the same college library, MS Prague, NK ČR, VIII D 1, seems to be of very similar composition.

Whoever first brought knowledge of the *Secretum secretorum* to Bohemia, it had apparently already arrived before the University of Prague's foundation. In the late Přemyslid and early Luxembourg eras, medical doctors and intellectuals at the Prague court of King Wenceslas II († 1305) were already well acquainted with the text, as attested by MS Bern, Burgerbibliothek 513: the codex contains an anonymous treatise combining the pseudo-Aristotelian lapidary with astrological and physiological sections. The author quoted the *Secretum* in the introduction, where

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12 Behaim's activity in Bohemia regarding the spread of the *Secretum*'s knowledge in Central Europe is summarized by C. Thierry, "La fabrique d'une fiction sur Alexandre le Grand: citations du *Secretum secretoru*m dans l'*Annexe* de l'*Alexander* d'Ulrich von Etzenbach (*Alexander – Anhang*, fin XIIIe – début XIVe siècle)", in *Trajectoires européennes du* Secretum secretorum, p. 413–414.

13 Forster, *Das Geheimnis der Geheimnisse*, p. 127–129.

14 Given the exceptional contacts between Czech and English scholars from the end of the fourteenth century, including intensive manuscript exchange, it is appropriate to ask if there might have been a diffusion of Bacon's redaction of the *Secretum Secretorum* in late medieval Bohemia; the author's research to date has not, however, revealed any such diffusion.

15 MS Prague, NK ČR, VIII C 22, fol. 147v: "Cave igitur Alexander ne assumas medicinam vel venam apperias nisi de voluntate et licencia sciencie astrorum quia utilitas sciencie medicinalis exaltatur seu comendatur in hoc."

16 MS Prague, NK ČR, VIII C 22, fol. 144v; cf. *Das Brief- und Memorialbuch des Albert Behaim*, p. 296

he presented an instructive story about Polemon and Hippocrates manifesting the convincing power of the physiognomy. The notes on fol. 2v and elsewhere stating that this treatise had been written in the eternal memory of and for the glory of King Wenceslas II reveal its connection to the Czech Lands[17].

One of the manuscripts in the Vatican Apostolic Library (MS Vatican, BAV, Pal. lat. 1253) presents a similar case: the codex is medically-oriented, and was probably put together in the 1270s at the University of Montpellier. It contains more than fifty different texts, the John of Seville translation of the *Secretum secretorum* among them. An owner of this manuscript was directly connected to Wenceslas II, as indicated by a gloss added to the section concerning laxatives which reveals that the king had been cured fifteen times with this medicine. On fol. 195v, there is a minor remark "pro Wenceslao", and fol. 200r reveals that a provost of Vyšehrad, most probably Peter of Aspelt, was also cured by this laxative[18]. The pieces of evidence are not sufficient to reconstruct the history of the manuscript's possessors; one of them might have been John Hacke of Göttingen († 1349), who was once very close to Peter of Aspelt, and was active at the University of Montpellier until 1314[19]. John of Göttingen was definitely familiar with the text of the *Secretum*. Probably in 1331, he wrote a treatise for the Bohemian King John the Blind, *Epistola de cautela a venenis*, which detailed how to protect oneself against poison[20]. The text begins with a passage in which the author introduces four famous medical authorities of the antique and medieval eras (Aristotle, Galen, Rhazes, Avenzoar) who wrote medical instructions for their rulers. These are presented as models for John of Göttingen writing for the Bohemian king. Moreover, John of Göttingen sketched a parallel between himself and the most prominent names of medieval medicine,

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17 Z. Žalud, "Prameny k přírodním naukám a medicíně u dvora Václava II. [Sources on Natural Sciences and Medicine at the Court of Wenceslas II]", in *Mediaevalia Historica Bohemica*, 14–2 (2011), p. 7–23. MS Bern, Burgerbibliothek, ms. 513, fol. 2v: "In dei honorem omnipotentis et gloriam et perpetuam memoriam virtuosi Wenceslai secundi regis Bohemorum principis gloriosi."; fol. 3v: "In ipsius enim laudem honorem ac perpetuam memoriam hic liber extitit compilatus."; fol. 58r: "Hunc libellum, qui physonomia regia intitulatur, collegimus in perpetuam memoriam excellentissimi principis domini Wenczeslai secundi regis bohemorum, ut bonos noscat et se ipsis sociare valeat et fugeat consortia impiorum." Quotations according to Žalud, "Prameny", p. 12, n. 30.

18 L. Schuba, *Die medizinischen Handschriften der Codices Palatini in der Vatikanischen Bibliothek*, Wiesbaden, Dr. Ludwig Reichert Verlag, 1981, p. 292–299. See also Žalud, "Prameny", p. 17–18.

19 See A. Mindermann, *Der berühmteste Arzt der Welt*, Bielefeld, Verlag für Regionalgeschichte, 2001; For a summary of John's life, see M. Říhová et al., *Lékaři na dvoře Karla IV. a Jana Lucemburského* [Physicians at the Court of Charles IV and John of Luxembourg], Praha, Paseka, 2010, p. 66–74. See also an older study by K. Wenck, "Johann von Göttingen. Arzt, Bischof und Politiker zur Zeit Kaiser Ludwigs des Bayern", in *Archiv für Geschichte der Medizin*, 17 (1925), p. 141–156. For the relationship between John of Göttingen and Peter Aspelt, see T. Schmidt, "Drogen für den Erzbischof. Peter von Aspelt (gest. 1320) und der Arzt Johann von Göttingen", in *Archiv für mittelrheinische Kirchengeschichte*, 58 (2006), p. 109–130.

20 For the form of a stylized letter in medical treatises, see G. Baader, "Lehrbrief und Kurztraktat in der medizinischen Wissensvermittlung des Früh- und Hochmittelalters", in N. R. Wolf (ed.), *Wissensorganisierende und wissensvermittelnde Literatur im Mittelalter. Perspektiven ihrer Erforschung*, Wiesbaden, L. Reichert, 1987, p. 246–254.

and compared John the Blind to Alexander the Great and Emperor Antonius[21]. Similarly, he says, Aristotle's *Secretum* was itself written by a famous savant for a great ruler[22]. To warn his king, John used in his treatise on the protection against poison a narrative about a poison hidden inside the body of a beautiful Indian girl, using the words from the *Secretum*: "Cave, cave mortifera venena[23]!"

2. The *Secretum secretorum* in Institutional Libraries

The *Secretum secretorum* became a part of various intellectual and educational circles. University as well as monastic or Chapter libraries contained books, some of which were used for teaching the trivium and quadrivium, which encompassed rhetoric, dialectic and natural philosophy[24]. The *Secretum secretorum*, as a text attributed to Aristotle, might be reckoned to have been part of these collections. Except for the Augustinian Canons by St. Thomas', however, we do not have complete lists of the books held by the *studia* of religious orders, which flourished in Prague during the fourteenth century, and which were partly united with the university after its foundation[25]. The *Secretum* is not mentioned among books covering nearly the entire known corpus of Aristotle held in the St. Thomas convent; nevertheless, we know that John Klenkok, the Augustinian monk who studied theology in Prague until 1352, owned a copy of the text and probably even translated it into Middle High German[26]. In addition, Matthew of Roudnice, the provost of the Augustinian canonry in Roudnice, copied the *Secretum secretorum* during his exile in Wrocław[27].

The Hussite wars brought a decline in the educational activities of the ecclesiastical schools in Bohemia, as monastic libraries were destroyed and intellectual life was generally greatly impaired. Nevertheless, analogous cases from Silesian convents reveal that the *Secretum* had a place in some monastic libraries: the treatise belonged to the libraries of the Dominican and Franciscan convents in Wrocław

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21 *Epistola de cautela a venenis* was edited by M. Říhová in *Lékaři na dvoře Karla IV. a Jana Lucemburského*, p. 78–110, this particular place, p. 78.

22 *Epistola de cautela*, p. 78: "Sic namque pater philosophie Aristoteles librum De regimine principum edidit Alexandro."

23 *Epistola de cautela*, p. 82. Cf. *Opera hactenus inedita*, p. 59–60. For the poisoned maiden narratives in Arabic literature, see M. Ullmann, *Die Medizin in Islam*, Leiden / Boston, Brill, 1970, p. 322.

24 D. L. Sheffler, *Schools and Schooling in Late Medieval Germany. Regensburg, 1250–1500*, Leiden / Boston, Brill, 2008, p. 19–32

25 See J. Kadlec, "Řeholní generální studia při Karlově universitě v době předhusitské [Monastic General Studies at the Charles University in the pre-Hussite period]", in *Acta Universitatis Carolinae – Historia Universitatis Carolinae Pragensis*, 7–2 (1966), p. 63–108; for the list of books, see J. Kadlec, *Das Augustinerkloster Sanct Thomas in Prag. Vom Gründungsjahr 1285 bis zu den Hussitenkriegen mit Edition seines Urkundenbuches*, Würzburg, Augustinus-Verlag, 1985, p. 58–80.

26 A. Zumkeller, "Manuskripte von Werken der Autoren des Augustiner-Eremitenordens in mitteleuropäischen Bibliotheken", in *Augustiniana*, 12 (1962), p. 301, no. 522.

27 K. Boldán, "Die Augustiner-Chorherren aus Raudnitz und Sadská im Exil in der Hussitenzeit als Schreiber der Handschriften", in *Studie o rukopisech*, 29 (1992), p. 81.

(MSS Wrocław, Biblioteka Uniwersytecka, I Q 15 and I F 293), the Franciscan convent in Görlitz (MS Wrocław, Biblioteka Uniwersytecka, Mil. II 76), and the monastery in Głogów (MS Wrocław, Biblioteka Uniwersytecka, I F 752).

If we consider the *Secretum* a text used with an educational purpose, especially in rhetoric, its form as a letter also has to be taken into account. It can be found in the collections of letters, real as well as fictional, that might have served as handbooks of *ars dictandi*. MS Prague, NK ČR, VIII A 19 could be an example, as it contains a florilegium of *dictamina*, including *Epistola Aristotelis ad Alexandrum* which is the *Secretum* in the translation of Philip of Tripoli[28]. The copies of authentic as well as fictional letters were complemented by the text of *De ludo scaccorum* by Jacobus Cessolis, the *Breviloquium* by John of Wales, and a copy of the *Gesta Romanorum*. This codex was given to the church in Trhové Sviny in southern Bohemia, probably by John of Stropnice, the university-educated leader of the Rosenberg chancellery[29]. Similar collections of letters including the *Secretum*, or a variant of *Epistola ad Alexandrum* which stood textually close to the *Secretum*, are found in MSS Wrocław, Biblioteka Uniwersytecka, II F 22 and I Q 102.

A significant number of manuscripts containing the *Secretum secretorum* in both versions, i.e. those of John of Seville and Philip of Tripoli, belong to the library of Prague metropolitan chapter. It is very probable that at least some of them were used for educational purposes in the Prague cathedral school, which was frequently headed by university trained scholars. MS Prague, KMK, L 52, for example, contains a commented copy of the *Secretum*[30], astronomical texts, and *Computus ecclesiasticus* by Johannes de Sacrobosco. Furthermore, the codex includes three important works by the Prague metropolitan chapter canon and university master Bartholomew of Chlumec (also known as Klaret or Claretus de Solencia): *Medicinarius*, *Complexionarius*, and *Astronomicus*. When writing his *Medicinarius*, Klaret used the *Secretum* very extensively[31]. This whole codex was probably produced in the Prague metropolitan chapter, though the *Secretum* commentary originated at the university, and was used in the cathedral school, as Anežka Vidmanová has convincingly suggested[32].

Another of the chapter library's manuscripts, MS Prague, KMK, M 8, includes mostly medically oriented treatises. The codex contains a collection of shorter texts dealing with medicine, alchemy, astronomy, and herbaria (one Latin-Czech, another Latin-German), a passage concerning meteors, and a treatise on urine by Alexander Hispanus. One part of the codex comprises instructions on how to produce a light capable of killing snakes by its splendor, how to prepare an invisible

28 MS Prague, NK ČR, VIII A 19, fols 16v–22v; 41v–42r.

29 R. Šimůnek, *Správní systém šlechtického dominia v pozdně středověkých Čechách. Rožmberská doména 1418–1472* [The Administrative System of the Aristocratic Dominion in Late Medieval Bohemia. The Rosenberg Demesne 1418–1472], Praha, Historický ústav AV ČR, 2005, p. 459.

30 MS Prague, KMK, L 52, fols 186r–189v.

31 A. Vidmanová, "Mistr Klaret a jeho spisy [Master Klaret and his Writings]", in *Listy Filologické*, 103–4 (1980), p. 218.

32 Vidmanová, "Mistr Klaret a jeho spisy", p. 219.

script, and how to prepare a candle which does not light unless the Master allows[33]. The *Secretum* in John of Seville's translation[34] appears here along with other medical treatises and recipes. The copy included the complete text of the translation, and omitted only a few sentences (e.g. the passage on teeth and gums)[35]. Extensive marginal – and also several interlinear – glosses commenting on the content of the treatise accompany the text. It is evident that the commentator was educated in medicine, or had some experience in medical practice. There are only indirect indications as to the possible owner of this codex, or the social circle where it was used, mostly notes on events in the Prague church and the metropolitan chapter that are inscribed in the manuscript. Secondly, the Czech glosses and recipes suggest that at least one of the owners was of Czech origin. The list of medical treatises included in the codex leads us to the circle around the dean of the Faculty of Arts and rector of the University of Prague, the medical doctor and astronomer Christian of Prachatice[36]. Another clue lies in the marginal notes included in this volume, one of which suggests that the scribe was a sympathizer of John Hus, who was a student of Christian[37].

3. The University of Prague

A particular community of readers was created by the foundation of the University of Prague, and the *Secretum* was a part of that. The *Secretum*, however, was not included in the required courses to be followed by all students, and was thus somewhat marginal to university activity *per se*. Compared to the usage by medieval scholars of the major Aristotelian texts, the references to the *Secretum* were rather few. Nevertheless, the *Secretum* enjoyed a steady position in this academic milieu as a didactic text in the narrow sense of the term, namely, for the moral and health advice that it imparted; it was also appreciated as a philosophical text, in particular for what it had to say regarding natural philosophy[38]. The *Secretum* was read, copied, quoted, and commented on at universities. The popularity of the text corresponded to the general attraction of the basics of ancient knowledge and ancient philosophy to Czech medieval scholars[39]. The simplified, condensed, and often narrative

33 MS Prague, KMK, M 8, fols 143r–144r. See A. Podlaha, *Soupis rukopisů Knihovny Metropolitní kapitoly pražské* [A Catalog of Manuscripts of the Prague Metropolitan Chapter], vol. II, Nr. 1361, p. 264–268.

34 MS Prague, KMK, M 8, fol. 183r (with the incipit "O Allexander, cum homo sit corruptibilis").

35 Cf. *Dänkmäler Provenzalischer Literatur und Sprache*, vol I, ed. H. Suchier, Halle, M. Niemeyer, 1883, p. 475.

36 Christian was a moderate Hussite and a supporter of communion in both kinds. For his life and work, see A. Hadravová, P. Hadrava, *Křišťan z Prachatic: Stavba a užití astrolábu* [Christian of Prachatice: The Construction and Use of the Astrolabe], Praha, Filosofia, 2001, p. 13–43.

37 MS Prague, KMK, M 8, fol. 72r: "[…] v naději boží mistr Jan Hus [in the Hope of God Master John Hus]."

38 S. Williams, "The Pseudo-Aristotelian Secret of Secrets as a Didactic Text", in J. F. Ruys (ed.), *What Nature Does Not Teach: Didactic Literature in the Medieval and Early-Modern Periods*, Turnhout, Brepols, 2008, p. 41–57.

39 As shown by Václav Žůrek, there was an increasing demand for stories with an ancient theme in fourteenth century Bohemia. See V. Žůrek, "Chess, Moral Principles, and Ancient Stories. The Fortunes

collections of classical stories on philosophers and rulers – such as the *De vita et moribus philosophorum* by pseudo-Burley, the *Breviloquium* by John of Wales, and the originally Arabic texts like *Boca de Oro* or the pseudo-Aristotelian *Secretum secretorum* – might be considered tools which helped familiarize medieval readers with the ancient world[40].

3.1 Copies of the *Secretum secretorum* at the University of Prague

The *Secretum* was known at the University of Prague from its foundation, as library catalogs of manuscripts belonging to the old university colleges reveal several records of it. One of the entries locates the treatise under the title *Secreta secretorum cum aliis* in the *Collegium Caroli*, among the manuscripts which the Emperor Charles IV gave to the university in the 1360s[41]. The fifteenth century catalogs also provide evidence of two copies of the *Secretum* in the former Reček college, both found in a section of moral philosophical texts[42], and five copies in the library of the college of the Bohemian nation: two were stored among theological books, two among theological and liturgical texts, and one among codices concerning Hussite matters[43]. At least two of these manuscripts included copies of the *Secretum* in the translation of Philip of Tripoli. These two codices are still preserved in the manuscript collection of the National Library in Prague. One (modern shelfmark MS Prague, NK ČR, VIII D 1) is a collection of various texts, among which are formularies and letters; the other (MS Prague, NK ČR, VIII C 22) includes a collection of historiographic and rhetorical texts[44].

In the second manuscript, the *Secretum* was copied along with one of the *Epistolae ad Alexandrum*[45]. The *Epistola* immediately precedes the copy of the *Secretum*, which follows with the first prologue by Philip of Tripoli[46]. This *Epistola* is also predominantly medical, like the John of Seville version of the *Secretum*, yet these were two different texts. The *Epistola* (I), however, has some connection to the tra-

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of Cessolis' *Liber de moribus* and other Classicizing Works in Medieval Bohemia", in P. Cermanová, A. Rec, V. Žůrek (eds.), *Books of Knowledge and their Reception. Circulation of Widespread Texts in Late Medieval Europe*, Turnhout, Brepols (forthcoming).

40 See R. Copeland, "Behind the Lives of Philosophers. Reading Diogenes Laertius in the Western Middle Ages", in *Interfaces*, 3 (2016), p. 245–263, here p. 248.

41 *Catalogi librorum vetustissimi Universitatis Pragensis. Die ältesten Bücherkataloge der Prager Universität*, eds. Z. Silagiová, F. Šmahel, Turnhout, Brepols, 2015, p. 8; I. Hlaváček, *Knihy a knihovny v českém středověku* [Books and Libraries in the Czech Middle Ages], Praha, Karolinum, 2005, p. 300.

42 One of these manuscripts, MS Prague, Reček College Library, A 11 (today lost), was sold, along with other codices, in the presence of a certain Wenzel of Prague's New Town. See *Catalogi librorum vetustissimi Universitatis Pragensis*, p. 32.

43 *Catalogi librorum vetustissimi Universitatis Pragensis*, p. 121, cf. table III, p. lxxii.

44 J. Truhlář, *Catalogus codicum manu scriptorum latinorum*, vol. I, Praha 1905, Nr. 1491, p. 549 (MS Prague, NK ČR, VIII C 22); Nr. 1496, p. 551–552 (MS Prague, NK ČR, VIII D 1).

45 See MS Prague, NK ČR, VIII C 22, fol. 134r. For *Epistola* see Schmitt, Knox, *Pseudo-Aristoteles Latinus*, p. 32; this text is mentioned here under the title *Epistola ad Alexandrum I*. The list of Schmitt – Knox includes only one entry, MS Vatican, BAV, Barb. Lat. 3953.

46 MS Prague, NK ČR, VIII C 22, fol. 136v.

dition of the *Secretum* in medieval Europe; the Prague manuscript is not the only one where these two texts are adjacent[47].

A similar arrangement can be seen in one of the codices of the Prague metropolitan chapter library (MS Prague, KMK, N 55). This codex includes two copies of Philip's translation copied by the same scribe; while the first is complete, the second is unfinished. The first copy (fols 85r–118v) ends with the passage on physiognomy entitled *De arte cognoscendi qualitatem hominis*, followed immediately by the *Epistola ad Alexandrum* (fols 118v–125r), which here stands at the end of the *Secretum* closely connected to this text.

There are also four records of the *Epistola Aristotelis ad Alexandrum* in the manuscript catalog of the library of the college of the Bohemian nation. The *Epistola Aristotelis* presents a challenge to tracking the tradition and dissemination of the *Secretum secretorum*, since there are multiple variants of it circulating together with the *Secretum* under the *Epistola*'s title. It is known, however, that the titles of texts were variable and not a certain indicator of which text is being referred to[48]. It has previously been demonstrated that the heading *Epistola ad Alexandrum* also served as a title for the Latin translation of the opening lines of the pseudo-Aristotelian *Rhetorica ad Alexandrum*, which was probably translated by William Moerbeke in the thirteenth century[49]. These texts, the (partial) translation of the *Secretum secretorum* and the *Epistola*, had some common features, since the *Secretum* opens with a sequence of two letters between Alexander the Great and Aristotle, and the *Secretum* as a whole was written in the form of a letter. The catalogs of the old university libraries reveal the entry *Epistola ad Allexandrum* in MS A 20, which belonged to the library of the college of the Bohemian nation (today MS Prague, NK ČR, IV D 6)[50]. Here, the *Epistola* is embedded in a context very similar to most European copies of the text, immediately preceded by the *De pomo et morte Aristotelis*, *De mundo*, *De inteligentia Aristotelis* and *De vita Aristotelis*. As Pieter De Leemans has pointed out, the sequence *De mundo – Epistola – De vita Aristotelis* was not coincidental: two of these texts, *De mundo* and *Epistola*, began with a letter from Aristotle to Alexander, and the other two, *Epistola* and *De vita*, referred to the biography of Aristotle. *De pomo*, which was also part of this sequence in some manuscripts, including the Prague one, discussed

47 The extracts from the *Epistola* (I) and from the *Secretum* are combined, for example, in MS Innsbruck, Universitätsbibliothek, 525 and MS Berlin, Staatsbibliothek, Diez. C fol. 2. See U. Winter, *Die europäischen Handschriften der Bibliothek Diez, 3. Die Manuscripta Dieziana C*, Leipzig, Zentralantiquariat der DDR, 1994, p. 12–13. A copy of the very same *Epistola* (of Bohemian origin, as mentioned above) is also preserved in MS Wrocław, Biblioteka Uniwersytecka, II F 22.

48 This problem is summarized by R. Sharpe, *Titulus. Identifying Medieval Latin Texts*, Turnhout, Brepols, 2003, p. 34–45, 69–82.

49 P. De Leemans, "*Reductio ad Auctoritatem*. The Medieval Reception of Pseudo-Aristotle's *Epistola ad Alexandrum*", in *Recherches de Théologie et Philosophie Médiévales*, 84–2 (2017), p. 245–283.

50 MS Prague, NK ČR, IV D 6, fol. 156r. To the best of the author's knowledge, there is only one other preserved manuscript related to the Czech Lands which includes the *Epistola*: MS Toruń, Biblioteka Uniwersytecka, ms. 27, 2, fol. 1r. This manuscript is not included in De Leemans's list, cf. De Leemans, "*Reductio*", p. 275–276.

Aristotle's death[51]. MS A 50 of the library of the college of the Bohemian nation, now lost, included *De mundo* followed by *Epistola Aristotelis*, while *Epistola* was preceded by *De pomo* in MS A 91 from the same collection[52]. Finally, the codex I 90 from the college of the Bohemian nation, apparently included both the texts, i.e. the *Epistola Alexandri* followed immediately by the *Secreta secretorum Aristotelis*[53]. Here, however, it is not clear exactly which text was hidden under the title *Epistola Alexandri*, since it might also have been one of the prologue letters known from the tradition of the *Secretum*.

In 1370, Dytherus de Wydera was elected dean of the Faculty of Arts in Prague[54]. It is probably his name that we find in the proprietary note in MS Prague, KMK, L 77. This copy of the *Secretum* would appear to be the oldest extant version of Philip of Tripoli's translation preserved in Bohemia. The codex comprises works by Albert the Great, Boethius, and Thomas Aquinas, along with Latin translations of Arabic texts by Al-Kindi and Al-Gazali. The *Liber de pomo* and the *Secretum* represent the pseudo-Aristotelian treatises, while Aristotle's genuine works are covered by the *Liber de bona fortuna*[55]. The copy of the complete translation by Philip of Tripoli preserved in the codex (fols 75r–106v) does not follow Behaim's traditional ordering of the sections. While Behaim's redactions conclude with the treatise on physiognomy, the copy in MS L 77 ends with the description of the ninth physical remedy, which the *Secretum* describes as a magical panacea, traditionally ordered in the middle of the text.

Other proprietary notes in *Secretum* manuscripts witness that university students or graduates were their owners. A certain Valentin of Veselé, Bachelor of the Faculty of Arts of the University of Prague (1411)[56] who became a parish priest in Sluštice, is known to have had an abbreviated copy of the *Secretum*[57]. Another example is Simon of Rokycany, Bachelor (1407) and later Master (1410) of the Prague Faculty of Arts, who owned a codex including an extensive commentary on the medical parts of the *Secretum*[58].

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51 De Leemans, "*Reductio*", p. 251–252.

52 *Catalogi librorum vetustissimi Universitatis Pragensis*, p. 136, 137.

53 *Catalogi librorum vetustissimi Universitatis Pragensis*, p. 87.

54 J. Tříška, *Životopisný slovník předhusitské pražské univerzity 1348–1409* [Biographical Lexicon of the Pre-Hussite Prague University 1348–1409], Praha, Univerzita Karlova, 1981, p. 505–506.

55 See B. Dod, "Aristoteles Latinus", in Kretzmann, Kenny, Pinborg, Stump (eds.), *Cambridge History of Later Medieval Philosophy*, p. 77. For the diffusion of this work, see V. Cordonier, "Réussir sans raison(s). Autour du text et des glosses du *Liber de bona fortuna Aristotelis* dans le manuscrit du Melk 796 (1308)", in A. Speer, D. Wirmer (eds.), *1308. Eine Topographie historischer Gleichzeitigkeit*, Berlin / New York, De Gruyter, 2010, p. 705–770.

56 *Liber decanorum facultatis philosophicae ab anno Christi 1367 usque ad annum 1585*, pars I, eds. A. Dittrich, A. Spirk, Pragae, Typis Joan. Nep. Gerzabek, 1830, p. 415.

57 MS Prague, KMK, L 60.

58 MS Prague, NK ČR, IX C 3. For Simon's academic *curriculum vitae*, see Tříška, *Životopisný slovník*, p. 485 and M. Svobodová, "Dochované kodexy z knihovny M. Šimona z Rokycan († 1421) [Extant Codices from the Library of M. Simon of Rokycany († 1421)]", in J. Radimská (ed.), *K výzkumu zámeckých, měšťanských a církevních knihoven. „Čtenář a jeho knihovna"*, České Budějovice, Jihočeská univerzita v Českých Budějovicích, 2003, p. 13–30.

The old university college libraries, as already mentioned, possessed at least two complete or nearly-complete copies of the translation of Philip of Tripoli. Traces of active usage can also be observed in the copy in MS Prague, NK ČR, VIII D 1: glosses which assist in the orientation of the text, notes commenting on the content, and small directional hands in the margins all attest to this.

Since MS Prague, NK ČR, I G 23, dating to 1414–1415, contains a compendium of the medical sciences entitled *Compendium artis medicae cum experimentis et secretis* which seems to have originated as a record of lectures at the university[59], it is a valuable piece of evidence showing that the *Secretum* was used during university lectures on medicine. John of Seville's version of the *Secretum* is found here among other medicinal texts and recipes which focus on suitable meals and drinks according to one's physical constitution and the season of the year, as the rubric "de cibis et potibus" indicates. The copy of the *Secretum* is followed directly by a *Regimen mensium*, a text which was part of the compendium *Melleus liquor*, written by Alexander Hispanus[60]. As copied here, the Czech equivalents of the Latin names have been added to each month in the *regimen mensium*. The Prague manuscript is not the only case where these two texts were copied together, as both are present in a manuscript belonging to the former library of the parish of Saint James, in Brno[61].

A manuscript, now preserved as MS Wrocław, Biblioteka Uniwersytecka, IV Q 52, includes excerpts from several of Aristotle's works, such as his *Politics*, *Economics*, and *Ethics*, as well as works by other ancient authors, including Boethius, Plato, and Seneca. Among the excerpts from the works of ancient philosophers, which include the *Auctoritates Aristotelis*, were extensive extracts from Philip of Tripoli's translation of the *Secretum secretorum* (p. 155–170). This manuscript, dated to the end of the fourteenth century, was copied by the prominent Polish Dominican John of Ząbkowice (John of Frankenstein) during his studies at the University of Prague. He left Prague, where he graduated from the Faculty of Arts in 1398 and started to study theology, for Leipzig in 1409[62]. The Wrocław manuscript provides yet more evidence that students at the University of Prague read the *Secretum*.

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59 See Truhlář, *Catalogus codicum*, vol. I, Nr. 299, p. 299: "Compendium artis medicae 'cum experimentis et secretis' nec non permultis formulis medicinalibus, in quibus passim occurrunt medicamentorum nomina bohemica. Ex prooemio patet codice nostro contineri lectiones medicas in universitate (Pragensi?) habitas a quodam magistro, qui scholaribus antea philosophiam tradiderat."

60 For more information on Alexander Hispanensis in medieval Bohemia, see I. Zachová, "*Dicta de disposicione hominis et eius membris Alexandri Hispani* v rukopisu 113/110 Svatojakubské knihovny v Archivu města Brna [*Dicta de disposicione hominis et eius membris Alexandri Hispani* in Manuscript 113/110 of the Saint James' Library in the Brno Municipal Archive]", in *Graeco-Latina Brunensia*, 18–2 (2013), p. 201–203. See also K. Sudhoff, "Alexander Hispanus: und das Schriftwerk unter seinem Namen. Ein erstes Wort über ihn und Bekanntgabe seiner medizinischen Schriften", in *Sudhoffs Archiv für Geschichte der Medizin und der Naturwissenschaften*, 29–4/5 (1936), p. 289–312.

61 MS Brno, Moravská zemská knihovna, 113/110. See Zachová, "Dicta". See also S. Petr, *Soupis rukopisů knihovny při farním kostele svatého Jakuba v Brně* [Catalog of Manuscripts of the Library of the Parish Church of St. James in Brno], Praha, Masarykův ústav a Archiv Akademie věd České republiky, 2007, p. 397–403.

62 A. Zajchowska, *Między uniwersytetem a zakonem. Biografia i spuścizna pisarska dominikanina Jana z Ząbkowic (†1446)*, Warszawa, Wydawnictwo Naukowe Semper, 2013; J. Tříška, *Literární činnost předhusitské univerzity* [Literary Production of the Pre-Hussite University], Praha, Universita Karlova, 1967, p. 134.

MS Leipzig Universitätsbibliotek, Ms. 1339, might also have originated in Prague. It contains mainly copies of texts belonging to the *Corpus recentius*, among them part of the *Secretum* translated by John of Seville (fol. 293r–v). The beginning of the proprietary note is written by a fourteenth-century hand. It reads "Iste liber est", and then the rest is erased and replaced by a text written by a fifteenth-century hand stating that the volume belonged to John Holbag, bachelor of the University of Leipzig, who later served as a canon in the Wrocław chapter. The fact that the manuscript is older than the University of Leipzig suggests that it was one of the books brought to the city by scholars from Prague after the events of 1409, when masters and students of the three non-Bohemian university nations decided to leave Bohemia.

Fragments of the *Secretum* frequently occur here or there in manuscripts, copied sometimes out of curiosity, or in reference to another topic. Short excerpts from the *Secretum* can be found in MS Prague, NK ČR, V G 25. According to the indices in the texts copied in the manuscript, some of them originated in the college of Queen Jadwiga at the University of Prague[63]. The manuscript as a whole dates from the first half of the fifteenth century. Some of the texts included here point to the Hussite background of this codex: at fol. 287r, King Sigismund of Luxembourg is described as a tyrannical ruler who had been seduced by the Council of Constance into taking military actions against his people. The extracts from the *Secretum* (introduced by the words "Aristoteles in libro de secretis secretorum") were copied by the same hand. Whoever recorded these excerpts, their attention was limited to three topics: firstly, the harmfulness of coitus with a woman, secondly, the destructiveness of unmeasured wine consumption, and lastly, the warning for a ruler not to spill blood and to attack his people[64]. This particular idea may have been very

63 MS Prague, NK ČR, V G 25, fol. 287r: "Ingrossata quoque in alma universitate studii Pragensis in collegio Regine eiusdem universitatis antelate per Nicolaum de Zelina anno incarnacionis dominice millesimo quadringentesimo vicesimo […]."

64 MS Prague, NK ČR, V G 25, fol. 287r, fol. 287r–v: "Aristoteles in libro de Secretis secretorum: Clemens Imperator, noli te inclinare ad coitum mulierum, quia coytus est quedam proprietas porcorum. Que gloria est tibi, si exerces (*ms.* exerceas) vicium irracionabilium bestiarum et actus brutorum. Crede mihi indubitanter, quod coytus est destructio corporis et abbreviacio vite et corrupcio virtutum, legis transgressio femineas (*ms.* femines) mores generat et ultimo inducit illud malum quod prediximus. Vinum autem quando sumitur habundanter in magna quantitate, tunc hec mala consequuntur: obscurat intellectum et impedit sensum et turbat cerebrum, debilitat virtutem naturalem, generat oblivionem, ledit omnes sensus quinque quibus regitur et disponitur tota operacio corporalis, fugat appetitum, debilitat cathenas corporis et iuncturas, generat tremorem membrorum et lippitudinem oculorum, accedit coleram, destruit epar quia reddit ejus sanguinem grossiorem, et cordis cruorem denigrat. Ex inde proveniunt timor et horror, sompni locucio, fantastice visiones, corrupcio coloris, debilitacio genitalium, destructio seminis, abhominacio stomachi, distemperat complexionem, generat corporis grossitudinem, et quod deterius est, lepram inducit, et tunc est de genere venenorum. Cavendum est ergo ne [vinum] ultra modum sumatur, quia vinum mutat naturam et complexionem. O Alexander, frequenter monui te et adhuc moneo quod meam custodias doctrinam, quam si servaveris, tuum propositum consequeris et regnum tuum durabile permanebit. Noli (*ms.* videlicet) sanguinem humani generis per te effundere, quoniam hoc soli Deo convenit, qui novit occulta cordium et secreta hominum. Noli tibi assumere divinum oficium, quia non est tibi datum // scire archanum divinum. Cave igitur quantum potes sanguinem effundere humanum, quia doctor egregius Hermogenes scripsit dicens:

topical, considering Sigismund of Luxembourg's image during the Hussite wars. The last passage about shedding human blood was well-known and widely disseminated. It shows up, for example, in MS Třeboň, Státní oblastní archiv, A 3 at the end of a miscellaneous collection comprised of various theological, juridical, prophetic, and medical works[65]. Yet another snippet of the *Secretum*, the exemplum of an Indian girl filled with poison, also appears in a university manuscript[66].

3.2 The Possession and Use of the *Secretum secretorum* by Scholars in Bohemia

The *Secretum secretorum* is a multi-layered text with diverse contents; many scholars, not only medical doctors and authors of medical works looking for information, considered it an important work to quote. The Carthusian monk Michael of Prague, for example, was heavily influenced by the *Secretum* when he wrote his *De quatuor virtutibus cardinalibus pro eruditione principum* for Rupert of Bavaria in 1378[67]: he relies on the *Secretum* for his advice on the need for a ruler to be wise and to be moderate in his speech[68]. The *Secretum* is also quoted explicitly in the fifth book of a collection of various texts called *Summa recreatorum*[69], and in a Mirror of Princes falsely attributed

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Quando creatura interfecit creaturam sibi similem, virtutes celorum clamabunt ad divinam majestatem dicentes: Domine, Domine, servus tuus vult esse similis tibi. Quia si iniuste interficit, respondit creator excelsus: Perimite eum qui interficit, quia interficietur. Mihi vindictam et Ego retribuam. Et tociens in suis laudibus virtutes celorum representabunt mortem interfecti donec vindicta sumatur ab interficiente, qui erit unus de perseveratoribus in penis eternis."

65 MS Třeboň, Státní oblastní archiv, A 3, fol. 177v: "O Alexander firmiter monui te et adhuc moneo quod cum meam studeas doctrinam, quam si servaveris, tuum propositum consequeris et regnum tuum durabile permanebit. Videlicett per te sanguinem humani generis non effundere, quoniam hoc soli Deo convenit, quoniam novit occulta hominum et secreta cordium. Noli ergo tibi assumere divinum oficium, quia non est tibi datum scire archanum divinum. Cave igitur quantum potes humanum effundere sanguinem, quia doctor (*ms*. dator) egregius [Hermogines] dixit, dicens: Quando creatura interficit creaturam sibi similem [ut homo hominem] virtutes celorum clamant dicentes ad divinam majestatem: Domine, Domine, servus tuus vult tibi esse similis. Quod si iniuste interfecit, tunc respondebit creator excelsus: Permitte eum quia interficit et nunc mihi interfici. Quia mihi vindicta[m] et ego retribuam. Et tociens virtutes celorum representabunt in suis laudibus mortem interfecti donec vindictam sumant de interfectore qui erit de perseverantibus in penis eternis (*ms.* eius)."

66 E.g. MS Wrocław, Biblioteka Uniwersytecka, I Q 310, fol. 139v.

67 *The* De quatuor virtutibus cardinalibus pro eruditione principum *of Michael the Carthusian of Prague. A Critical Text and Study*, ed. W. G. Storey, Salzburg, Analecta Cartusiana, 1972 (book I); *Michael of Prague O. Cart. De quatuor virtutibus cardinalibus pro eruditione principum*, book II–V, ed. R. Witkowski, Salzburg, Institut für Anglistik und Amerikanistik, 2009. See also M. Grabmann, "Studien über den Einfluß der aristotelischen Philosophie auf die mittelalterlichen Theorien über das Verhältnis von Kirche und Staat", in M. Grabmann, *Gesammelte Akademieabhandlungen* I, München, F. Schöningh, 1979, p. 847.

68 *The* De quatuor virtutibus cardinalibus, I, p. 164. See P. Cermanová, "Moc vědění: pseudo-aristotelské *Secretum secretorum* ve středověkých Čechách [The Power of Knowledge. The Pseudo-Aristotelian *Secretum Secretorum* in Medieval Bohemia]", in *Studia Medievalia Bohemica*, 5–2 (2013), p. 201–202.

69 A. Vidmanová, "Antika ve sborníku *Summa recreatorum* [Antiquity in the Collection *Summa recreatorum*]", in J. Nechutová (ed.), *Druhý život antického mýtu*, Brno, Centrum pro studium demokracie a kultury, 2004, p. 144; A. Vidmanová, "Summa recreatorum", in D. Flieger, V. Bok (eds.), *Deutsche Literatur in Böhmen und über Böhmen*, Wien, Edition Praesens, 2001, p. 169–179.

to the Emperor Charles IV[70]. Both of these texts are related to the Prague Luxembourg court, and not to the university, at least not directly. Direct evidence of the usage of the *Secretum* at the university still remains largely hidden in unpublished material. Bartholomew of Jasło, for example, a scholar at the University of Prague, quoted from the pseudo-Aristotelian *Secretum* and *De pomo* extensively in his university speeches *Dei Hic iubet ordo* and *Tunc me discussa liquerunt nocte tenebre*, given in 1390[71].

It is highly relevant for the intellectual milieu of the pre-Hussite and Hussite university that John Wyclif, some of whose ideas were ardently accepted by Bohemian scholars, revealed a strong textual dependency on the *Secretum* in his *De officio regis*. The text of *De officio regis* is known from three manuscripts of Bohemian provenance, at least two of them verifiably connected to the University of Prague through the names of their owners, Peter of Zepekow and Paul of Slawkowicz[72]. Sometimes following the *Secretum* word for word, Wyclif presented the image of a king whose fame depended on wisdom and the observation of divine law, who revered clerics and wise men, encouraged students and supported schools, protected his subjects, and did not shed human blood. This king was also expected to regulate himself and others, and be moderate in his speech[73].

Compelling evidence of how the *Secretum* was used to instruct students is presented by the treatise *De modulo studendi*, probably written by a monk from the Charterhouse at Dolany near Olomouc in the fifteenth century[74]. The text provided advice on how to study without being disrupted by maladies of the body or seductions of the mind. *De modulo studendi* was intended for a (university-)educated priest or cantor, as evidenced by advice on how to preach and how to proceed if someone had neglected his studies, yet wanted to become a parish priest. One of the primary sources of the treatise was the *Secretum*, quoted verifiably both

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70 *Ein Fürstenspiegel Karls IV.*, ed. S. Steinherz, Prag, Verlag der Deutschen Gesellschaft der Wissenschaften und Künste für die Tschchoslowakische Republik, 1925. The real author of the Mirror was probably Niccolò Beccari, an Italian humanist in the service of the ruler; this authorship was suggested by J. Ludvíkovský, "Anonymní zrcadlo knížecí přičítané Karlu IV [An Anonymous Mirror of Princes Ascribed to Charles IV]", in *Studie o rukopisech*, 14 (1975), p. 125–127.

71 The speeches are preserved in manuscripts of the Jagiellonian Library in Cracow (MSS Cracow, BJ, 2192 and 2215). M. Kowalczyk, "Odnowienie Universytetu Krakowskiego w świetle mów Barłomieja z Jasła", in *Małopolskie Studia Historyczne*, 6–3/4 (1964), p. 23–42. For Bartholomew of Jasło see K. Ożog, *Uczeni w monarchii Jadwigi Andegaweńskiej i Władysława Jagiełły (1384–1434)*, Kraków, Polska Akademia Umiejętności, 2004, p. 76–79.

72 "Magister Petrus de Zepekow" is mentioned as an owner in MS Prague, NK ČR, X D 11; MS Vienna, ÖNB, 3933, was owned by Paul of Slawkowicz, who obtained a bachelor's degree at the University of Prague in 1395. See A. Hudson, "The Hussite catalogues of Wyclif's works", in A. Hudson, *Studies in the Transmission of Wyclif's Writings*, Aldershot / Burlington, Ashgate, 2008, p. 1–23.

73 Iohannes Wyclif, *Tractatus de officio regis*, eds. A. W. Pollard, C. Sayle, London, Trübner, 1887. Cf. M. Manzalaoui, "The Pseudo-Aristotelian Sirr al-Asrār and Three Oxford Thinkers of the Middle Ages", in G. Makdisi (ed.), *Arabic and Islamic Studies in Honor of Hamilton A. R. Gibb*, Leiden, Brill, 1965, p. 480–500.

74 MS Olomouc, Vědecká knihovna, M I 357. See J. Odstrčilík, "Poučení o správném způsobu studia ve středověkém traktátu *De modulo studendi* (VK Olomouc, M I 357) [Teaching on the Right Way of Studying in a Medieval Treatise *De modulo studendi* (VK Olomouc, M I 357)]", in *Acta Universitatis Carolinae – Historia Universitatis Carolinae Pragensis*, 53–2 (2013), p. 23–39.

from the original and the *Auctoritates Aristotelis*[75]. The author of *De modulo studendi* adopted the *Secretum*'s recommendation to eat sweet raisins in the morning as a way to stimulate the spirit, intellect, and memory[76]. Relying again on Pseudo-Aristotle's authority, he also warned students against excessive wine consumption, drunkenness, and contact with women, which were sources of sin, and which drove the mind away from study[77].

3.3 Commentaries on the *Secretum secretorum*

Being copied is not necessarily the same as being read and studied. One of the most common criteria for assessing any text's reception and measuring its impact in the medieval academic milieu lies in the number of its commentaries[78], and the situation for the *Secretum* is not disappointing in this respect. To the author's knowledge, several commentaries have been preserved in medieval Bohemia and Central Europe; most concern John of Seville's translation, which was probably the subject of university lectures. Only a few, if any, Prague scholars ever lectured on Philip's translation or wrote a commentary on it.

The most extensive university commentary on the *Secretum* is preserved in MS Prague, NK ČR, IX C 3, formerly held by the library of the college of the Bohemian nation with the shelfmark L 2[79]. This manuscript probably belonged to Master Simon of Rokycany (mentioned above in Section 3.1), perhaps even before his entering the university[80]. Apart from the *Secretum* commentary, the manuscript includes mainly theological texts, along with a copy of *Anticlaudianus*, an allegorical treatise by Alan of Lille, and a commentary on Cato's *Disticha*. The anonymous author

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75 It is noteworthy that on one occasion the author provides a quotation with a reference to the *Secretum*, although in reality, it stems from Aristotle's *Physics* ("Consuetudo est altera natura."). See MS Olomouc, Vědecká knihovna, M I 357, fol. 46v, cf. J. Hamesse, *Les Auctoritates Aristotelis, un florilège médiéval. Étude historique et édition critique*, Paris, Publications universitaires, 1974, p. 144.

76 MS Olomouc, Vědecká knihovna, M I 357, fol. 39r: "Aristotilis in libro De regimine principum, qui dicitur Secretum secretorum, scribit de optima medicina ingenii, dicit enim sic: Qui recipit quolibet mane et comedit septem dragmas racemi passi bone dulcedinis, illius memoria emendatur, intellectus illuminatur." The text is quoted according to the edition prepared by J. Odstrčilík, *Jak úspěšně studovat ve středověku? Analýza pozdně středověkého traktátu* De modulo studendi *(RKP Olomouc, VK M I 357) a edice jeho vybraných částí* [How to Successfully Study in the Middle Ages? Analysis of the Late Medieval Treatise *De modulo studendi* (RKP Olomouc, VK M I 357) and an Edition of its Selected Parts], Prague, MA Diss. Charles University Prague, 2012. Cf. *Opera hactenus inedita*, p. 87.

77 MS Olomouc, Vědecká knihovna, M I 357, fol. 40v, cf. *Opera hactenus inedita*, p. 92, cf. Hamesse, *Les Auctoritates Aristotelis*, p. 271.

78 The following is only an introduction to the material, to be analyzed more thoroughly in the study P. Cermanová, "Sharing Academic Knowledge: Commentaries on the *Secretum secretorum* in the Czech Lands", in Cermanová, Rec, Žůrek (eds.), *Books of Knowledge* (forthcoming).

79 *Catalogi librorum vetustissimi Universitatis Pragensis*, p. 94–95. See also Truhlář, *Catalogus codicum*, vol. II, Nr. 1714, p. 11–12.

80 See the colophon on fol. 314r: "Explicit Fulgencius per me Simonem de Rokyczana tunc rectorem scolarum in Tyn Horssow anno Domini 1401 in vigilia sancte Trinitatis." Cf. Svobodová, "Dochované kodexy", p. 21–22.

opens his commentary on the *Secretum* in the translation of John of Seville with a prologue containing a reference to Aristotle's treatise *De morte et vita*, a part of the *Parva naturalia*: "Aristoteles in libro De morte et vita scribit unam proposicionem: mors iuvenum est amara. In qua proposicione tanguntur duo, primo tangitur mortis in iuvenibus possibilitas per hoc quod dicitur mors iuvenum[81]." This introduction together with the introduction of the actual commentary on the *Secretum* ("Sciendum itaque quod non erit via vel est ad rem. Iste liber, cuius subiectum est regimen corporis humani ad conservandam corporis sanitatem prima sui divisione dividitur in duo, in partem prohemialem et executivam, secunda ibi Oportet te, Alexander[82]") leads to interesting pieces of information on the transmission of knowledge and details on medieval academic mobility, as the very same text was copied in at least two codices now preserved in the Jagiellonian Library in Cracow under shelfmarks 711 and 2032. Both manuscripts date to the fourteenth century: the first, 711, originated in the University of Prague, and one of its owners was Paul of Worczyn, a student in Prague until 1409 when, given the changes at the University of Prague, he left for the newly founded University of Leipzig. There he taught the arts, perhaps serving as dean of that faculty, before leaving to study theology at Cracow where, by June of 1416, he had also become a faculty member in the Arts Faculty[83]. The entirety of MS 711 is Aristotelian in orientation: it contains works of Marsilius of Inghen on several Aristotelian texts, the florilegium *Auctoritates Aristotelis* and, finally, the same commentary on the *Secretum* as in MS Prague, NK ČR, IX C 3 (the first sentence of the prologue is missing in the Cracow manuscript)[84]. The complete text of the commentary is found in MS Cracow, BJ, 2032, which dates to 1367[85]. Whether this particular commentary originated in Prague or in Cracow, it circulated among scholars in Central European universities from the second half of the fourteenth century.

The commentary found in MS Cracow, BJ, 796 probably followed a similar path of transmission. This codex originated in Prague in the 1360s. According to the commentary's explicit, the scribe had just finished copying the "dicta" on *De regimine principum* by a certain master (whose name, unfortunately, has been erased in

81 MS Prague, NK ČR, IX C 3, fol. 258r.

82 MS Prague, NK ČR, IX C 3, fol. 258v.

83 For his life, see J. Rebeta, *Komentarz Pawła z Worczyna do „Etyki Nikomachejskiej" Arystotelesa z 1424 roku. Zarys problematyki filozoficzno-społecznej*, Wrocław, Wydawnictwo Polskiej Akademii Nauk, 1970, p. 66–79. See also P. W. Knoll, *"A Pearl of Powerful Learning": The University of Cracow in the Fifteenth Century*, Leiden / Boston, Brill, 2016, p. 323.

84 MS Cracow, BJ, 711, fol. 83v: "[Aristoteles scribit unam proposicionem in libro De morte et vita: Mors iuvenum est amara]. In ista proposicione 2° tanguntur: primo tangitur iuvenum possibilitas per hoc, quod dicitur: mor[s] iuvenum, 2° tangitur iuvenum mortis excellens terribilitas." The text begins on fol. 84r: "Iste liber dividitur in duas, scilicet in partem prohemialem et executivam, ibi: Oportet te, Alexander."

85 MS Cracow, BJ, 2032, fol. 337r: "Aristotiles scribit unam proposicionem in libro De morte et vita, mors iuvenum est amara. In qua proposicione tanguntur duo: primo mortis in iuvenibus possibilitas per hoc quod dicitur mors iuvenum; secundo tangitur mortis iuvenum excellens terribilitas per hoc, quod dicitur amara."

the manuscript)[86]. His words seem to suggest that the Prague masters also lectured on the complete *Secretum*.

The commentaries just described were not the only ones on the *Secretum* to have been produced and disseminated in the Bohemian academic milieu. MS Prague, Knihovna Národního muzea, XIII F 8, included the text of the *Secretum* in the translation of John of Seville[87], with a commentary in the form of extensive marginal glosses. Another commentary, different when compared to those mentioned above, was part of a codex belonging to the library of the Premonstratensian monastery at Louka[88]. It was probably given to the library by a scholar, and thus comes from an academic environment, which is further supported by the very same commentary preserved in MS Wrocław, Biblioteka Uniwersytecka, IV Q 53. The Wrocław text was copied by a student of the University of Cracow, Paul of Lobin (Silesia), in the 1460s. At the beginning of that commentary, the author repeated some details of the relationship between Aristotle and Alexander the Great, and also the section on the Biblical virtues, taken from the Philip of Tripoli's prologue ("pudicia Noe, fidelitas Abrahe, confidencia Isaac etc."), which enabled Alexander to understand all the text's revealed secrets[89]. The text of the commentary combined different narratives: apart from the exposition of the medical passages of the *Secretum*, the story of the magical conception and birth of Alexander, based on pseudo-Callisthenes, was also included[90].

Conclusion

The Bohemian story of the *Secretum secretorum* is very similar to that which can be seen in the rest of Europe. It was considered a source not only of Aristotelian wisdom and maxims, but also of scientific knowledge, especially regarding medicine. There are a number of witnesses to the reception of the *Secretum* in the Czech Lands, including complete manuscripts, fragments of varying size, and short excerpts written in the margins of manuscripts for immediate use or out of curiosity. The *Secretum* clearly became part of the developing intellectual tradition in Bohemia, and its audience was continually diversifying and increasing. It reached the royal court and intellectual elites and extended to chapter canons and monasteries. In the second half of the fourteenth century, it also became a part of the university academic scene, as it was copied, studied, glossed, and even commented upon at the University of Prague soon after its foundation. The reception of the *Secretum* was partly interrupted during the Hussite wars in the first half of the fifteenth cen-

86 MS Cracow, BJ, 796, fol. 4v: "Explicit liber De regimine sanitatis vel De regimine principum. Expliciunt dicta magistri (erasum) supra librum de regimine principum."

87 MS Prague, Knihovna Národního muzea, XIII F 8, fols 128r–131v. The prologue of the *Secretum* corresponded to the version copied by Kříž of Telč (Crux de Telcz) in MS Třeboň, Státní oblastní archiv, A6, fol. 132r.

88 MS Olomouc, Vědecká knihovna, M II 52.

89 MS Olomouc, Vědecká knihovna, M II 52.

90 MS Olomouc, Vědecká knihovna, M II 52, fols 233v–234r.

tury, when a number of Bohemian monasteries were abandoned or isolated, ecclesiastical institutions declined, and the University of Prague virtually ceased in its activities for more than a decade. Scholars left Prague and Bohemia, along with at least some of their books, including the *Secretum secretorum* and its commentaries. As historians, we can follow these lines of transmission. A similar process is traceable to the events of 1409, when masters and students of the non-Bohemian nations left Prague and spread the university's commentaries and texts, including those related to the *Secretum*, outside Bohemia. This allows the influence of the Prague traditions to be seen at other centers of knowledge such as Leipzig and Cracow. The story of the *Secretum* at these other centers remains to be told.

MONIKA MANSFELD

Prolegomena to a Study of John of Münsterberg's Commentary on the *Metaphysics**

1. The Author

John of Münsterberg, also known as John of Ziębice or Johannes Ottonis de Münsterberg, was an eminent Silesian philosopher and theologian active at the turn of the fifteenth century. He began his academic career at the University of Prague, where he earned a bachelor's degree in 1382 and *licentia docendi* in 1386, and received his master's degree one year later[1]. Shortly afterwards, he started lecturing at the Arts Faculty. Simultaneously, he took up theological studies and became a *doctor theologiae* about 1400.

In addition to his research and didactic duties, John of Münsterberg engaged in a wide range of administrative activities. The University's documents give evidence that he was, repeatedly, a member of the committees in charge of bachelor's exams (in 1389, 1390, 1393, 1394)[2] and of master's exams (1392, 1397)[3] at the Faculty of Arts. Moreover, in the 1390s he was almost constantly in charge of the Faculty's finances as collector[4]. In 1393 he was a vice dean of the Faculty and two years later he was

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1 Cf. J. J. Menzel, "Johannes von Münsterberg", in Historische Kommission bei der Bayerischen Akademie der Wissenschaften (ed.), *Neue Deutsche Biographie*, Bd. 10, Berlin, Duncker & Humboldt, 1974, p. 562.

2 Cf. F. Šmahel, "The Faculty of Liberal Arts 1348–1419", in F. Šmahel, *Die Prager Universität im Mittelalter / The Charles University in the Middle Ages. Gesammelte Aufsätze / Selected Studies*, Leiden / Boston, Brill, 2007, p. 279–284.

3 Cf. Šmahel, "The Faculty of Liberal Arts 1348–1419", p. 282, 287.

4 Cf. Šmahel, "The Faculty of Liberal Arts 1348–1419", p. 281–287.

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elected dean[5]. In 1398 he was elected rector of the University of Prague[6]. At the beginning of the fifteenth century, he served as the Faculty's assessor (in 1401)[7] and dispensator (in 1403)[8].

During the time of Münsterberg's academic career the University of Prague was riven by fierce disputes of a national, religious and philosophical character. The most severe conflict that yielded serious consequences concerned the power struggle among the Prague university nations. As a prominent representative of the Polish[9] university nation in Prague[10], John of Münsterberg was involved in negotiations with King Wenceslas IV to protect the interests of the Polish, Bavarian and Saxon nations marginalized by the Kuttenberg Decree. After he had unsuccessfully protested against the King's decision to give members of the Bohemian university nation a decisive voice in almost all university affairs, Münsterberg left his Prague *alma mater* in protest, together with 46 German professors[11] and a large group of students from the three foreign nations, in May 1409[12]. He subsequently co-founded the new university in Leipzig in 1409, becoming its first rector. He held that office ceaselessly until his death on 24 March, 1416[13].

From the philosophical point of view, John of Münsterberg is considered to be an indirect doctrinal heir of John Buridan and his Parisian academic environment[14]. Münsterberg's philosophical views were shaped both by his cursory teaching and discussions he had in Prague with representatives of Czech radical realism influenced by John Wyclif's writings[15]. During his academic career he educated a group of prominent students, who later contributed to spreading his ideas all over Central Europe, e.g. Nicholas Kozłowski, Paul of Worczyn, Nicholas of Cracow and Mat-

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5 Cf. F. Krause, "Jan z Ziębic", in A. Maryniarczyk (ed.), *Encyklopedia filozofii polskiej*, t. 1, Lublin, Polskie Towarzystwo Tomasza z Akwinu, 2011, p. 565.

6 Cf. Krause, "Jan z Ziębic", p. 565.

7 Cf. Šmahel, "The Faculty of Liberal Arts 1348–1419", p. 279–291.

8 Cf. Šmahel, "The Faculty of Liberal Arts 1348–1419", p. 293.

9 Although this nation was called Polish, it enrolled students from a much wider area, i.e. Greater and Lesser Poland, Masovia, Silesia, Thuringia, Pomerania, Lusatia, Prussia, Meissen, and Lithuania. Cf. P. W. Knoll, *"A Pearl of Powerful Learning": The University of Cracow in the Fifteenth Century*, Leiden / Boston, Brill, 2016, p. 212.

10 Cf. M. Nodl, *Das Kuttenberger Dekret von 1409. Von der Eintracht zum Konflikt der Prager Universitätsnationen*, Köln / Weimar / Wien, Böhlau, 2017, p. 396.

11 Cf. Menzel, "Johannes von Münsterberg", p. 562.

12 Cf. Šmahel, "The Faculty of Liberal Arts 1348–1419", p. 264–266. For more about the Kuttenberg Decree and its consequences see F. Šmahel, "The Kuttenberg Decree and the Withdrawal of the German Students from Prague in 1409. A Discussion", in *History of Universities*, 4 (1984), p. 153–166.

13 Cf. A. Schimmelpfennig, "Johannes von Münsterberg", in Historische Commission bei der Königl. Akademie der Wissenschaften (ed.), *Allgemeine Deutsche Biographie*, Bd. 24, Leipzig, Duncker & Humblot, 1887, p. 756–757.

14 Cf. R. Palacz, "Stefan Palecz", in *Materiały i studia Zakładu Historii Filozofii Starożytnej i Średniowiecznej*, Seria A, t. VII, Wrocław / Warszawa / Kraków, Ossolineum, 1967, p. 103. R. Palacz points out that John of Münsterberg attacked both radical realists and nominalists in his polemical works – yet, the opinions he presented bring him closer to the second group.

15 Cf. M. Markowski, "Die Stellungnahme des Johannes von Münsterberg gegenüber den Universalien", in *Acta Mediaevalia*, 8 (1995), p. 57.

thias of Koło[16]. He also had an impact on other scholars who adopted his views, although they did not meet Münsterberg in person – it is well known that his works were read and discussed by Bohemian, German and Polish scholars until at least the second half of the fifteenth century[17].

Bearing in mind the popularity Münsterberg's works enjoyed in his times and in the next generation, it seems surprising that none of his commentaries were ever printed in the form of early prints; nor have they yet been critically edited. The number of copies of his works is not impressive, as the majority of them are preserved in one manuscript only[18]. John of Münsterberg's doctrinal legacy lies mostly in his commentaries on Aristotle's works and on Peter Lombard's *Sentences*, of which very little survived. The texts available for modern scholars are limited to some treatises in logic, the monumental Commentary on the *Metaphysics*, and some independent questions and sermons[19].

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16 Krause, "Jan z Ziębic", p. 565.

17 The only systematic research on John of Münsterberg's philosophical views to date was carried out by F. Krause. It was restricted to doctrinal studies of selected problems from his Commentary on the *Metaphysics* and covered three main areas: epistemology, methodology and ontology. Cf. F. Krause, *Poglądy filozoficzne Jana z Ziębic*, Gdańsk, Akademia Medyczna, 1993. Münsterberg's views on universals from his Prague disputes have been analyzed by M. Markowski. Cf. Markowski, *Die Stellung des Johannes von Münsterberg*, p. 57–68. Some minor notes on John of Münsterberg and the impact he had on authors in the first half of the fifteenth century in Cracow can also be found in the series *Dzieje filozofii* średniowiecznej *w Polsce*: Z. Włodek, *Filozofia bytu*, Wrocław / Warszawa / Kraków / Gdańsk, Ossolineum, 1977; M. Markowski, *Teoria poznania*, Wrocław / Warszawa / Kraków / Gdańsk, Ossolineum, 1978; J. Rebeta, *Początki nauk społecznych. Podstawy metodologiczne*, Wrocław / Warszawa / Kraków / Gdańsk, Ossolineum, 1988 and in Markowski's study on the Cracow University in the fifteenth century: M. Markowski, *Burydanizm w Polsce w okresie przedkopernikańskim*, Wrocław / Warszawa / Kraków / Gdańsk, Ossolineum, 1971.

18 It is characteristic of John of Münsterberg's works that copies are spread all over Europe except for the universities he worked at, as there are absolutely no manuscripts containing his works in either Prague or Leipzig. Cf. M. Markowski, *Repertorium commentariorum medii aevi in Aristotelem Latinorum qui in Bibliotheca Universitatis Lipsiensis asservantur*, Kraków, Polska Akademia Umiejętności, 2012. Cf. J. B. Korolec, *Repertorium commentariorum medii aevi in Aristotelem Latinorum quae in Bibliotheca olim Universitatis Pragensis nunc Státni Knihovna ČSR vocata asservantur*, Wrocław / Warszawa / Kraków / Gdańsk, Ossolineum, 1977.

19 Cf. Krause, "Jan z Ziębic", p. 565. In order to conduct serious research on John of Münsterberg's philosophical and theological views, there is an urgent need to prepare an up-to-date catalog of his works, as there is real disorder concerning them, especially with regards to the authenticity and attribution of some of his writings. For instance, M. Markowski claims that John of Münsterberg is the author of *Sermo in obitu imperatoris factus Pragae* in MS Augsburg, Universitätsbibliothek, cod. II Lat 1 40 57, fols 67v–71r (previously MS Hamburg-Maihingen in Fürstlich-Oettingen-Waltersteinsche Bibliothek). Cf. Markowski, *Burydanizm w Polsce w okresie przedkopernikańskim*, p. 476. M. Markowski probably based this on J. Tříška's conviction that it was written either by John of Frankenstein or his supervisor, John of Münsterberg. Cf. J. Tříška, *Rétorický styl a pražská universitní literatura ve středověku* [Rhetorical Style and Prague University Literature in the Middle Ages], Praha, Univerzita Karlova, 1975, p. 145–146; on the other hand, in the catalog of the Augsburg library this sermon is attributed directly to John Brasiator of Frankenstein. Cf. *Lateinische mittelaterliche Handschriften in Quarto der Universitätsbibliothek Augsburg. Die Signaturengruppen Cod.I.2.40 und Cod.II.1.40*, ed. H. Hilg, Wiesbaden, Harrassowitz, 2007, p. 381. For more information on this sermon and the critical edition of this text, see B. Chmielowska, "Kazanie na rocznicę śmierci cesarza Karola IV", in *Przegląd Tomistyczny*, 10

2. Münsterberg's Commentary on the *Metaphysics* and its Single Copy

Münsterberg's Commentary on the *Metaphysics*, which is the main subject of my interest, is preserved in a single copy. It was discovered by M. Markowski in a manuscript held now in the Bayerische Staatsbibliothek in Munich under the shelfmark Clm 26929[20]. The colophon of the whole text[21] states that Münsterberg's lectures on the *Metaphysics* were the basis for the commentary. Another piece of information the colophon provides is the name of the scribe – Leonard Heczelstorff. He may be identified with Leonardus Hesselstorper, a scholar from the University of Prague active at the beginning of the fifteenth century[22]. After the Kuttenberg Decree, Leonard left his *alma mater*, and later moved to Paris, where he matriculated in 1410 as *baccalarius Pragensis*[23] and swiftly developed his academic career[24]. Based on the identification of the scribe and on the information that Clm 26929 contains a *reportatio*[25], it can be inferred that Leonard Hesselstorper participated in John of Münsterberg's lectures on the *Metaphysics* in Prague. The specific handwriting of the *reportatio* is an additional feature supporting its Prague origin[26]. The commentary must have been written between 1407 and 1409. The *terminus post quem* can be inferred from the colophon, where Leonard Heczelstorff calls himself a bachelor in Arts; it is known that he obtained his BA degree in 1407[27]. The *terminus ante quem* is 1409, the Kuttenberg Decree, which ended Münsterberg's didactic activity at the University of Prague.

(2004), p. 127–147. Moreover, some of the indices miss important manuscript sources containing philosophical works like John of Münsterberg's Commentary on the *Metaphysics* or the *Prior Analytics*. Cf. J. Krzyżaniakowa, "Jan z Ziębic", in K. Lepszy (ed.), *Polski słownik biograficzny*, t. 10, Wrocław, Ossolineum, 1962–1964, p. 492.

20 Cf. J. Wolny, M. Markowski, Z. Kuksewicz (eds.), *Polonica w średniowiecznych rękopisach bibliotek monachijskich*, Wrocław, Ossolineum, 1969, p. 169–170. Cf. Markowski, *Burydanizm w Polsce w okresie przedkopernikańskim*, p. 470.

21 Iohannes Ottonis de Monsterberg, *Quaestiones in Metaphysicam Aristotelis*, MS Munich, Bayerische Staatsbibliothek, Clm 26929, fol. 86vb: "Et sic est finis *Metaphysicae* Aristotelis reportatum(!) per me Leonardum Heczelstorff, baccalarium in artibus, a magistro Johanne de Monstenberg, de quo Deus gloriosus sit benedictus in saecula saeculorum. Amen. Etc."

22 Cf. *Liber decanorum facultatis philosophicae Universitatis Pragensis ab anno Christi 1367 usque ad annum 1585*, pars I, eds. A. Dittrich, A. Spirk, Pragae, Typis Joan. Nep. Gerzabek, 1830, p. 392. I owe the identification of Leonardus Heczelstroff and the details on his academic career to Dr. Ota Pavlíček.

23 Cf. *Liber procuratorum nationis Anglicanae (Alemanniae) in Universitate Parisiensi ab anno 1406 usque ad annum 1466*, t. 2, eds. H. Denifle, E. Chatelain, Parisiis, 1937, col. 73.

24 Cf. *Liber procuratorum nationis Anglicanae (Alemanniae) in Universitate Parisiensi ab anno 1406 usque ad annum 1466*, t. 2, col. 82, 101–102, 104–117.

25 Cf. Iohannes Ottonis de Monsterberg, *Quaestiones in Metaphysicam Aristotelis*, MS München, Bayerische Staatsbibliothek, Clm 26929, fol. 86vb.

26 Cf. Wolny, Markowski, Kuksewicz (eds.), *Polonica w średniowiecznych rękopisach*, p. 169–170.

27 Cf. *Liber decanorum facultatis philosophicae Universitatis Pragensis*, pars I, p. 392.

3. Commenting on the *Metaphysics* as a Work in Progress

Prague statutes of 1394 required that the *Metaphysics* was one of the subjects in master's exams in the Arts[28]. It is difficult to establish its place in the curriculum before that date, but, on the basis of university documents from May 1389, it may be assumed that it had not been among examination subjects and had been cultivated mostly for private interest[29]. Although we can provide no decisive proof that John of Münsterberg officially lectured on the *Metaphysics* before 1407, the significant impact his views had on later authors, especially on his students, supports the hypothesis that he started lecturing on it soon after it was introduced as a requirement for the master's exams. It seems very likely that John of Münsterberg lectured on the *Metaphysics* during the period of his academic activity in Prague several times, developing and revising his metaphysical views until they finally took the form of a commentary, which we know from Clm 26929. Some passages, especially the set of four questions devoted to the problem of the status of universals, must have been written earlier and then incorporated into the commentary in a slightly modified form[30]. The best evidence for this is that we know of at least two earlier texts where Münsterberg's views appear in the same doctrinal form as in the Commentary on the *Metaphysics*[31].

3.1 Prague Discussions

The first of these is a record of four university discussions with realists, which John of Münsterberg had in Prague in the early 1400s[32]. It was found in a manuscript held today in the Österreichische Nationalbibliothek under shelfmark 4483[33]. The manuscript contains a detailed description of Münsterberg's views on universals[34], which bears a striking resemblance to those found in four questions on book 7 of Münsterberg's commentary devoted to that subject matter[35]. This is visible not only in the similarity of manner in which the problems are formulated (the titles are alike), but even in the use of almost identical arguments and doctrinal solutions[36].

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28 Cf. Šmahel, "The Faculty of Liberal Arts 1348–1419", p. 241.

29 Šmahel, "The Faculty of Liberal Arts 1348–1419", p. 241.

30 Cf. M. Mansfeld, "*Utrum tantum signa sint universalia*. A Question from John of Münsterberg's Commentary on the *Metaphysics* (VII, 32)", in *Przegląd Tomistyczny*, 14 (2018), p. 211–224.

31 For reasons of brevity, I call Leonard Heczelstroff's *reportatio* "John of Münsterberg's commentary", even though it is not clear, if Münsterberg ever wrote a commentary on the *Metaphysics*.

32 Markowski, "Die Stellungnahme des Johannes von Münsterberg gegenüber den Universalien", p. 67.

33 J. Sedlák, "Filosofické spory pražské v době Husově [Philosophical Disputes in the Time of Jan Hus]", in J. Sedlák, *Studie a texty k náboženským dějinám* českým 2, Olomouc, Nakl. Matice Cyrilometodějské, 1915, p. 207–208. Cf. Markowski, "Die Stellungnahme des Johannes von Münsterberg gegenüber den Universalien", p. 57–68.

34 Iohannes Ottonis de Monsterberg, *Quaestiones disputatae de universalibus*, MS Vienna, ÖNB, Cod. 4483, fols 54v–61v.

35 Cf. Markowski, "Die Stellungnahme des Johannes von Münsterberg gegenüber den Universalien", p. 57–58.

36 M. Markowski, however, claims that Münsterberg's Commentary on the *Metaphysics* was written earlier than the discussions, i.e. at the very beginning of the fifteenth century at latest. This conclusion was

A good example is the first dispute *Utrum sint aliqua universalia in rebus condistincta signis vel utrum tantum signa sint universalia* (MS Vienna, ÖNB, Cod. 4483, fols 54v–55v), which corresponds to question 32 of book 7 of Münsterberg's Commentary on the *Metaphysics* (fols 62va–63ra) *Utrum tantum signa sunt universalia*[37]. The results of my comparison are as follows: the majority of the arguments from the *rationes* used in the first dispute appear in Münsterberg's commentary without any significant changes except, perhaps, for a slightly longer articulation[38]. The similarity of *rationes* in both texts is not merely accidental, because they have the same order. Moreover, close links between questions and discussions by Münsterberg are also evident in the positive part of the text, where general notes, conclusions and replies to previous arguments are placed. On the basis of this source material, it may actually be concluded that, their longer form notwithstanding, the questions present the same philosophical views and, moreover, are evidently based on the same doctrinal background. The main disadvantage of this scale of analysis is unfortunately its restricted scope, as questions on the universals are less than 5% of the whole commentary.

3.2 Nicholas Kozłowski's Copy

The second testimony to Münsterberg's teaching on the *Metaphysics* can be found in Cracow. MS Cracow, BJ, 738 contains an abbreviated version of Münsterberg's commentary, covering the first eight books of the *Metaphysics*[39]. The text was copied by

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reached on the basis of textual analysis: the lack of critical remarks about the radical realists' views on the status of universals in the commentary and its presence in the records of discussions were to prove that Münsterberg changed his attitude towards it over time. Cf. Markowski, "Die Stellungnahme des Johannes von Münsterberg gegenüber den Universalien", p. 67. The way I see it, this argument is not relevant for two reasons. First, the criticism of contemporary philosophical solutions is usually more visible in polemical texts, such as records of discussions, than in commentaries, which are clearly devoted to explaining the authoritative text. Münsterberg's case is not an exception here. Secondly, there actually is a developed criticism of the radical realists' point of view in the commentary, which is strikingly similar to the one from the discussions. The only difference is that in the commentary the criticism was against Plato and his followers, whereas in the discussions it was against his contemporaries, who happened to share Plato's views or at least were associated with them by Münsterberg.

37 For more information on this question as well as for its critical edition, see Mansfeld, "*Utrum tantum signa sint universalia*", p. 211–224.

38 For example, a *ratio in oppositum* in the first Prague dispute goes as follows: "Contra idem sequitur: si universalia solum essent signa, sequitur, quod omnia universalia essent in praedicamento qualitatis […]. Et sic universalia sunt voces, scripta vel conceptus et illa sunt qualitates etc." Iohannes Ottonis de Monsterberg, *Quaestiones disputatae de universalibus*, MS Vienna, ÖNB, Cod. 4483, fol. 55r. On the other hand, in Münsterberg's Commentary on the *Metaphysics* this argument is present in a slightly modified and expanded version: "Item sic: si tantum signa sunt universalia, sequitur, quod omnia universalia essent in praedicamento qualitatis, modo sic universalia omnia ut signata sunt in praedicamento qualitatis, igitur omnia universalia sunt in praedicamento qualitatis, tunc ultra […]. Sed homo, corpus sunt universalia, igitur sunt in praedicamento qualitatis. Sed cuilibet qualitati convenit secundum eam simile vel dissimile dici, sed homo, asinus et animal sunt qualitates, igitur convenit eis secundum eas simile vel dissimile dici, sed hoc est falsum, quia nullae res dicuntur similes secundum illa etc." Iohannes Ottonis de Monsterberg, *Quaestiones in Metaphysicam Aristotelis*, MS Munich, Bayerische Staatsbibliothek, Clm 26929, fol. 62vb.

Nicholas Kozłowski in 1400–1402, when he was a student of the Arts in Prague[40]. After receiving his Master's degree in Prague, he moved to Cracow around 1408–1410[41] and engaged in the academic life of the Arts Faculty there[42]. Although, as Z. Włodek notes, there is no direct evidence that the text copied in Prague was used for teaching by Kozłowski during his lectures on the *Metaphysics* in Cracow[43], it is entirely possible that it served as a textbook for further generations of students. This may be shown by the fact that it had an impact, directly or indirectly[44], on some later commentaries, e.g. the first Polish commentary on the *Metaphysics* by Peter of Sienno contained in MS Cracow, BJ, 2003 (fols 7r–248v)[45] or some anonymous commentaries on the *Metaphysics* (in MS Cracow, BJ, 2103 and MS Cracow, BJ, 2075)[46].

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39 Anonymus, *Quaestiones Pragenses in I–VIII libros „Metaphysicae" Aristotelis*, MS Cracow, BJ, 738, fols 122ra–282rb.

40 Under John of Münsterberg's supervision, he completed requirements for the bachelor's degree in Arts in 1398 and for the master's degree in 1402. Cf. *Liber decanorum facultatis philosophicae Universitatis Pragensis*, pars I, p. 333, 335, 368–369. From about 1410 he continued his academic education at the Faculty of Theology in Cracow and after a few years' break he finally become *doctor theologiae* in 1425. M. Markowski, "Mikołaj z Kozłowa", in *Materiały i studia Zakładu Historii Filozofii Starożytnej i Średniowiecznej*, Seria A, t. V, Wrocław / Warszawa / Kraków, Ossolineum, 1965, p. 81–82.

41 Cf. Markowski, "Mikołaj z Kozłowa", p. 81.

42 For more information on Kozłowski's later academic career and works, see: M. Gensler, E. Jung-Palczewska, "Wprowadzenie", in E. Jung-Palczewska (ed.), *Prima verba. Krakowskie mowy uniwersyteckie*, Łódź, Wydawn. Uniwersytetu Łódzkiego, 2000, p. 8.

43 Cf. Włodek, *Filozofia bytu*, p. 22.

44 Nicolaus Kozłowski died in 1444. The abbreviation of Münsterberg's commentary on the *Metaphysics* copied by him in Prague was among the manuscripts he bequeathed to the university library in 1439. Cf. Markowski, "Mikołaj z Kozłowa", p. 93–94, 131; W. Szelińska, *Biblioteki profesorów Uniwersytetu Krakowskiego w XV i początkach XVI wieku*, Wrocław / Warszawa / Kraków, Ossolineum, 1966, p. 46. The accessibility of the work could thus have contributed even more to its popularity in Cracow than its doctrinal content. This could also explain why so many commentaries on the *Metaphysics* were evidently inspired by the commentary in the second half of the fifteenth century, when nominalists' views were generally in decline and realists grew in power in Cracow.

45 According to historians of Cracow University, the year 1418, in which the commentary by Peter of Sienno was completed, marks the beginning of the Cracow tradition of commenting *Metaphysics*. Peter of Sienno, who studied at the Arts Faculty of Cracow University from about 1400 and spent all his academic life there, did not have a chance to meet John of Münsterberg in person, and his commentary was probably inspired by a now lost copy of Münsterberg's Commentary on the *Metaphysics*. Cf. Włodek, *Filozofia bytu*, p. 12. This inspiration is visible most of all in the formulation of questions: out of over 250 questions in each commentary more than 90% are identical. Cf. F. Krause, "Stosunek istoty do istnienia według Piotra z Sienna na podstawie jego komentarza do „Metafizyki" Arystotelesa", in *Roczniki Filozoficzne*, 1 (1996), p. 124–132. There are only two questions from Münsterberg's work that do not have equivalents in Peter of Sienno's commentary and there are three additional questions in the latter commentary that do not appear in John of Münsterberg's prototype. The similarities in the content are equally striking. The questions' problems are solved in almost exactly the same way in both commentaries. The minor changes and deviations from Münsterberg's doctrine are marked in a special way: Kozłowski quotes Münsterberg's opinions under his name only when he disagrees with them. When he agrees with Münsterberg, he silently presents these views as his own. Cf. Krause, "Stosunek istoty do istnienia", p. 124–132.

46 Cf. Markowski, *Burydanizm w Polsce w okresie przedkopernikańskim*, p. 472. These abbreviations also exhibit some dependence on Münsterberg's views, but the impact he had on their authors must have been indirect, because of their similarity to other Cracow commentaries influenced by Münsterberg's

What seems most important for our current considerations is that Nicolaus Kozłowski was John of Münsterberg's student, and that the commentary he brought with him from Prague resembles the *reportatio* from Clm 26929 to a great extent. The only differences that can be found in Kozłowski's text are slight alterations in the sequence of arguments and solutions from Münsterberg's commentary, Kozłowski's own remarks, and additional opinions taken from other sources. On the basis of the information about the dating of the text and historical information concerning the relationship between Kozłowski and Münsterberg in Prague, we may conclude that Kozłowski's commentary must have been based on John of Münsterberg's lectures on the *Metaphysics*, which means that he had lectured on the *Metaphysics* before the lectures recorded by Leonard Hesselstorper in 1407. The size of the existing text suggests that the commentary on the eight books may have been a complete set in the year when Kozłowski attended Münsterberg's lectures. Because the Hesselstorper's *reportatio* is a commentary on all twelve books of the *Metaphysics*, it may be concluded that Münsterberg returned to commenting on the *Metaphysics* in the years between 1402 and 1407. The considerable size of Münsterberg's commentary in Hesselstorper's *reportatio* also suggests that it is a material result of more than just a single lecture cycle.

4. Characteristics of John of Münsterberg's Commentary

A closer look at the commentary shows interesting peculiarities in its structure. Instead of formulating general questions concerning the commented text and treating them as a pretext for his own reflections, John of Münsterberg chose to stick to it in order to discuss a variety of particular problems in detail. This resulted in the astonishing scale of his project: the commentary contains as many as 255 questions altogether. They are relatively short and undeveloped – the size of questions ranges from one column to two folios – and are organized in a neat, perspicuous way. When it comes to the number of questions, John of Münsterberg's Commentary stands out from other contemporary so-called nominalist questions on the *Metaphysics*[47]. For instance, Buridan's commentary known as the *lectura ultima* has 96 questions[48], and Marsilius of Inghen's, which is somewhat more detailed, has

Commentary on the *Metaphysics*. These abbreviations, written in the mid-1450s, testify to the popularity of John of Münsterberg's and Peter of Sienno's doctrinal orientation at the Cracow University in the first half of the fifteenth century.

47 The name "nominalism" is based on fifteenth and sixteenth century sources, such as the nominalist manifesto of 1474, and does not seem particularly useful in explaining the character of the teachings of earlier authors. Cf. F. Kok, *A Faithful Philosopher. Philosophy and Theology in John Buridan's Commentary on Aristotle's Metaphysics*, Diss. Radboud Universiteit Nijmegen, 2014, p. 18. Cf. also W. J. Courtenay, *Ockham and Ockhamism. Studies in the Dissemination and Impact of His Thought*, Leiden / Boston, Brill, 2008, p. 1–19 and J. Biard, *Nominalism in the Later Middle Ages*, in R. Pasnau (ed.), *The Cambridge History of Medieval Philosophy*, Cambridge / New York, Cambridge University Press, 2010, p. 663.

48 The number of questions in Buridan's commentary was established based on the following manuscripts: MS Carpentras, Bibliothèque Inguimbertine, cod. 292, fols 45ra–118rb, MS Paris, Bibliothèque nationale de France, latin 14716, fols 117ra–191vb, and MS Greifswald, Geistliches Ministerium, cod. 26 D I,

101 questions[49]. The difference in the number of questions does not translate into the sizes of the whole works, as all three mentioned commentaries are very similar volumetrically.

The general rule in Münsterberg's commentary is that his questions reflect almost all of the questions from Buridan's and Marsilius's commentaries. The vast majority of question titles were taken directly from his predecessors' works. The more complex questions in Buridan or Marsilius, covering more than one problem in Münsterberg's commentary, are broken down into several questions solving these problems separately[50]. Apart from questions borrowed from Buridan's and Marsilius's commentaries, there are also a number of Münsterberg's own questions, which, nevertheless, doctrinally accord with what we consider to be Parisian nominalism. There are some questions whose only role is to explain the most important terms and definitions in the source text[51], general questions devoted to problems treated marginally in Buridan and Marsilius, such as *Utrum entis inquantum ens sint aliquae passiones* (IV, qu. 11) and *Utrum primum principium doctrinae sit demonstrabile* (IV, qu. 18)[52], and attempts to find the specific consequences of general theoretical solutions[53]. The commentary's main plank is thus a set of questions inspired by John Buridan and Marsilius of Inghen, supplemented by various additional questions, which are Münsterberg's own contributions.

In two respects, John of Münsterberg's commentary stands apart from both of the older commentaries. In the first place, he wrote a commentary on all of the first twelve books of the *Metaphysics*, which is rare in the academic commenting tradition. In Paris, the university statutes demanded that scholars concentrated only on

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fols 14ra–147ra, as well as on the 1518 edition (Iohannes Buridanus, *Quaestiones in duodecim libros Metaphysicorum Aristotelis*, ed. Iodocus Badius, Paris, C. Resch, 1518).

49 The number of questions in Marsilius of Inghen's commentary was established based on MS Cracow, BJ, 708, fols 1ra–182vb.

50 For example, question 1 of book 7 in Buridan's and Marsilius of Inghen's commentaries is *Utrum substantia sit prior accidente ratione, hoc est definitione, notitia et tempore*, which in Münsterberg's commentary is divided into three separate questions: *Utrum substantia sit prior accidente definitione* (VII, qu. 3), *Utrum substantia sit prior accidente cognitione* (VII, qu. 4) and *Utrum substantia sit prior accidente tempore* (VII, qu. 5). Another, VII 2: *Utrum forma sit prior et magis ens, vel etiam magis substantia quam compositum, et etiam quam materia*, was divided into *Utrum forma sit prius et magis ens quam materia* (VII, qu. 6), *Utrum forma sit perfectior composito* (VII, qu. 7), and *Utrum compositum sit magis substantia quam materia* (VII, qu. 9).

51 E.g. *Utrum illa definitio sit bona: "philosophia est veritatis scientia"* (II, qu. 10), *Utrum definitio necessarii sit bona: "necessarium est quod non contingit aliter se habere"* (IV, qu. 9), *Utrum illa divisio sit bona: "eorum, quae fiunt, quaedam fiunt ab arte, quaedam a natura, quaedam a casu"* (VII, qu. 15).

52 In Buridan, these two problems are raised in several questions in book 4, e.g. *Utrum metaphysica considerans de omnibus entibus sit una scientia* (IV, qu. 3), *Utrum metaphysicae sit assignatum unum subiectum proprium et adaequatum* (IV, qu. 4), *Utrum metaphysicae subiectum proprium sit ens* (IV, qu. 5), *Utrum hoc nomen "ens" significat substantias et accidentia secundum unam rationem sive secundum unum conceptum* (IV, qu. 6), *Utrum circa primum principium contingit errare* (IV, qu. 12), and *Utrum ista propositio: "idem inesse et non inesse simul eidem, secundum idem et sic de aliis circumstantiis est" impossibile sit primum principium complexum* (IV, qu. 13).

53 E.g. *Utrum in quibusdam animalibus ex sensibus fiat memoria et in quibusdam non* (I, qu. 8), Qu. 9. *Utrum experimentum fiat ex memoria* (I, qu. 9), *Utrum negans vocem significare ponit eam significare* (IV, qu. 20).

selected problems from certain books and, therefore, it was common to skip books 3, 11, 13 and 14 altogether in lecturing on the *Metaphysics*[54]. In Buridan's and Marsilius's commentaries, we find such a selection of ten books[55]. In Münsterberg, books 3 and 11 are relatively small, but their presence is of great importance, mainly because of the methodological issues they discuss. This is where John of Münsterberg deals specifically with the problem of the uncertainty of our cognition[56] and presents a set of questions that we would expect to encounter rather in a commentary on the *Physics* rather than the *Metaphysics*[57].

Secondly, John of Münsterberg's Commentary on the *Metaphysics* differs from the two earlier works on the same topic in its way of emphasizing the importance of particular issues. This, too, is visible in the number of questions dedicated to individual books. In Münsterberg's commentary, the most elaborate books are those which pose particularly difficult conceptional problems: book 1, with 40 questions, book 5, with 38 questions, and book 7, with 35 questions. This stands in contrast to the earlier commentaries, which were primarily devoted to explaining the content of book 7, considered to be the core of the whole *Metaphysics*, with book 4 or 12 demoted to second place. Judging from the number and length of questions on books 4 and 12 in Münsterberg's work it can be concluded, however, that he does not give any special attention to them.

On the whole, it can be stated that the selection of questions and the amount of space Münsterberg devotes to the discussion point to an individual trait of his work: the tendency to raise well-known, traditional metaphysical problems, such as the status of universals, the division of sciences or the cognition of first principles, to interpret them in a similar way to John Buridan and Marsilius of Inghen, and to supplement them with methodological and epistemological considerations, for instance on the possibility of and conditions for acquiring truth or knowledge. These aspects were, it seems, of great value to Münsterberg's successors, and contributed significantly to the popularity of his work among scholars.

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54 Cf. A. L. Gabriel, "Metaphysics in the Curriculum of Studies of the Mediaeval Universities", in P. Wilpert (ed.), *Die Metaphysik im Mittelalter. Ihr Ursprung und ihre Bedeutung*, Berlin, de Gruyter, 1963, p. 92–102. Cf. F. J. Kok, "John Buridan's Commentaries on the *Metaphysics*", in F. Amerini, G. Galluzzo (eds.), *A Companion to the Latin Medieval Commentaries on Aristotle's Metaphysics*, Leiden / Boston, Brill, 2013, p. 500–501.

55 In the first printed edition of Buridan's commentary the publisher added information like: "Iste liber non solet legi" in the table of contents for each book omitted by the author himself, so that the reader would gain the correct impression that the absence of questions on any of the fourteen books was not caused by a faultiness of the copy the edition was based on. Cf. Iohannes Buridanus, *Quaestiones in duodecim libros Metaphysicorum Aristotelis*, fols 77r–77v. M. Markowski suggested that because the issues from books 3 and 11 were considered to be a recapitulation of Aristotle's *Topics* and the fifth treatise of Peter of Spain's *Summulae logicales*, they did not have to be commented on during the course of *Metaphysics*. Cf. Markowski, *Teoria poznania*, p. 20.

56 E.g. *Utrum inquirentem veritatem oportet cognoscere dubitationem* (III, qu. 1), *Utrum solvere sit ignorantis vinculum* (III, qu. 2), *Utrum unus homo alio magis et melius intelligat* (III, qu. 5), *Utrum una scientia dicatur melior et deterior alia secundum proprium scibile* (XI, qu. 1).

57 E.g. *Utrum idem actus sit motus et mobilis* (XI, qu. 2), *Utrum solum quattuor modis fiat mutatio* (XI, qu. 3), *Utrum in immobilibus sit efficiens, bonum et finis* (III, qu. 3).

Appendix
Tabula Quaestionum of John of Münsterberg's *Quaestiones in Metaphysicam*

IOHANNES DE MÜNSTERBERG
Quaestiones in Metaphysicam Aristotelis
MS Munich, Bayerische Staatsbibliothek, Clm 26929 (fols 1ra–86vb)

TABULA QUAESTIONUM[58]

Liber I

Qu. 1. *Utrum metaphysica sit scientia* (fols 1ra–2ra)
Qu. 2. *Utrum metaphysica sit scientia ab aliis distincta* (fols 2ra–2rb)
Qu. 3. *Utrum hoc sit verum: "omnes homines natura scire desiderant"* (fols 2rb–3ra)
Qu. 4. *Utrum omnes sensus praeter utilitatem diliguntur propter se ipsos* (fols 3ra–3rb)
Qu. 5. *Utrum visus sit magis diligendus quam alius sensus* (fols 3rb–3va)
Qu. 6. *Utrum visus maxime faciat hominem cognoscere* (fols 3va–3vb)
Qu. 7. *Utrum sensus visus plures differentias rerum ostendit quam alius sensus* (fols 3vb–4ra)
Qu. 8. *Utrum in quibusdam animalibus ex sensibus fiat memoria et in quibusdam non* (fols 4rb–4va)
Qu. 9. *Utrum experimentum fiat ex memoria* (fols 4va–4vb)
Qu. 10. *Utrum aliqua bruta sint prudentia cum disciplinatione et aliqua bruta sunt prudentia sine disciplinatione* (fols 4vb–5ra)
Qu. 11. *Utrum experientia faciat artem et inexperientia casum* (fols 5ra–5rb)
Qu. 12. *Utrum convenientia et differentia brutorum secundum gradus ipsorum sint bene datae* (fols 5rb–5va)
Qu. 13. *Utrum differentia inter bruta et homines sit bene assignata, scilicet quod bruta vivunt imaginationibus et memoriis et parum participiant de experientiis, sed homines vivunt arte et rationibus* (fols 5va–5vb)
Qu. 14. *Utrum differentiae inter artem et experientiam sint bene assignatae* (fols 5vb–6rb)
Qu. 15. *Utrum expertus non artifex certius operetur quam artifex inexpertus* (fols 6rb–6va)
Qu. 16. *Utrum artifex sit scientior, intelligentior et sapientior experto* (fols 6va–7ra)
Qu. 17. *Utrum omnes actus et generationes sunt circa singularia* (fols 7ra–7va)
Qu. 18. *Utrum scientia speculativa sit melior et nobilior scientia practica* (fols 7va–7vb)
Qu. 19. *Utrum scientiarum aliae sunt ad voluntates, aliae ad necessitates, aliae ad introductiones, aliae ad nullum illorum* (fols 7vb–8ra)

58 The spelling in the list of questions has been consistently classicized to facilitate reading; some editorial interventions have also been introduced, when this was necessary for grasping the meaning of the text. I have decided, however, not to change the verb forms that do not follow the classical sequence of tenses, for it was established by academic custom in the Middle Ages to ignore it and, from the perspective of a modern reader, it provides a glimpse into this medieval stylistic curiosity.

Qu. 20. *Utrum sapiens debet scire omnia* (fols 8ra–8va)
Qu. 21. *Utrum [an] posse cognoscere difficilia sit condicio sive opus sapientis* (fols 8va–8vb)
Qu. 22. *Utrum esse certiorem aliis sit tertia condicio sapientis* (fols 8vb–9ra)
Qu. 23. *Utrum magis assignare causas circa omnem scientiam sit quarta condicio sapientis* (fol. 9ra)
Qu. 24. *Utrum habere scientiam eligibilem gratia sui ipsius et causam sciendi sit quinta condicio sapientis* (fols 9ra–9rb)
Qu. 25. *Utrum tantum sex sunt condiciones sapientis* (fols 9rb–9va)
Qu. 26. *Utrum sapientis sit ordinare et non ordinare* (fols 9va–9vb)
Qu. 27. *Utrum universalia sint difficillima ad cognoscendum, quia sunt a sensu remotissima* (fols 9vb–10rb)
Qu. 28. *Utrum metaphysica sit circa primas causas et prima principia* (fols 10rb–10va)
Qu. 29. *Utrum metaphysica sit sapientia* (fols 10va–11ra)
Qu. 30. *Utrum metaphysica sit omnium scientiarum certissima* (fols 11ra–11va)
Qu. 31. *Utrum metaphysica sit circa ens cuius causa vel cuius gratia singula sunt agenda, quod est bonum uniuscuiusque et quod est optimum in natura omni* (fols 11va–12ra)
Qu. 32. *Utrum metaphysica sit scientia speculativa* (fols 12ra–12rb)
Qu. 33. *Utrum sola metaphysica sit scientia libera* (fols 12rb–12va)
Qu. 34. *Utrum metaphysica sit possessio humana* (fols 12va–13ra)
Qu. 35. *Utrum metaphysica sit scientia maxime divina et honoranda* (fols 13ra–13rb)
Qu. 36. *Utrum metaphysica sit prima philosophia* (fols 13rb–13vb)
Qu. 37. *Utrum aliae scientiae sint notiores metaphysica* (fols 13vb–14ra)
Qu. 38. *Utrum metaphysica sit dignissima scientiarum* (fols 14ra–14va)
Qu. 39. *Utrum ponendi sunt duo ordines et duo principia entium, scilicet bonorum et malorum* (fols 14va–14vb)
Qu. 40. *Utrum bonum sit causa mali* (fol. 14vb)

Liber II
Qu. 1. *Utrum cognitio veritatis sit homini possibilis* (fols 15ra–15va)
Qu. 2. *Utrum aliqua cognitio veritatis sit homini impossibilis* (fols 15va–15vb)
Qu. 3. *Utrum possibile est aliquem errare circa cognitionem principiorum* (fols 15vb–16ra)
Qu. 4. *Utrum cognitio veritatis sit aliquo modo facilis et aliquo modo difficilis* (fols 16ra–16vb)
Qu. 5. *Utrum tantum duo sunt modi difficultatum in cognoscendo* (fols 16vb–17rb)
Qu. 6. *Utrum principia sint naturaliter ab homine cognita* (fols 17rb–17va)
Qu. 7. *Utrum intellectus humanus habeat se ad manifestissima in natura sicut oculus nocticoracis ad lumen solis* (fols 17va–18ra)
Qu. 8. *Utrum substantiae separatae sint ab homine cognoscibiles* (fols 18ra–18rb)
Qu. 9. *Utrum Deum esse sit demonstrabile* (fols 18rb–18va)
Qu. 10. *Utrum illa definitio sit bona: "philosophia est veritatis scientia"* (fols 18va–18vb)
Qu. 11. *Utrum differentia inter scientiam practicam et speculativam sit bene posita, scilicet quod finis practicae est operare et finis theoricae est scire vel veritas* (fols 18vb–19rb)
Qu. 12. *Utrum quidquid inest causae et causato verius inest causae quam causato* (fols 19rb–19va)

Qu. 13. *Utrum quodlibet ens habeat se ad veritatem sicut ad entitatem* (fols 19va–19vb)
Qu. 14. *Utrum in causis materialibus sit processus in infinitum* (fols 19vb–20rb)
Qu. 15. *Utrum in causis efficientibus sit processus in infinitum* (fols 20rb–20va)
Qu. 16. *Utrum in causis finalibus sit processus in infinitum* (fols 20va–20vb)
Qu. 17. *Utrum in causis formalibus sit processus in infinitum* (fols 21ra–21rb)
Qu. 18. *Utrum in causis accidentaliter subordinatis sit processus in infinitum* (fols 21rb–21va)
Qu. 19. *Utrum, si causae ordinatae sint finitae, prima causa sit causa omnium aliarum et non e converso* (fols 21va–21vb)
Qu. 20. *Utrum, si essent infinitae causae, omnes essent mediae* (fols 21vb–22rb)
Qu. 21. *Utrum forma prior sit magis ens quam posterior* (fols 22rb–22va)
Qu. 22. *Utrum necesse est in omni quod movetur intelligere materiam* (fols 22va–23ra)
Qu. 23. *Utrum consuetudo audiendi fabulas et falsitates sit impedimentum in acquisitione veritatis* (fols 23ra–23rb)
Qu. 24. *Utrum differentia hominum penes impedimenta contingentia in acquirendo scientias sit bene assignata* (fols 23rb–23vb)
Qu. 25. *Utrum logica in acquisitione scientiarum debet esse prima* (fols 23vb–24rb)

Liber III
Qu. 1. *Utrum inquirentem veritatem oportet cognoscere dubitationem* (fols 24rb–24va)
Qu. 2. *Utrum solvere sit ignorantis vinculum* (fols 24va–25ra)
Qu. 3. *Utrum in immobilibus sit efficiens, bonum et finis* (fols 25ra–25rb)
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Qu. 8. *Utrum materia sit quid vel quale vel quantum vel aliquid aliorum quibus est ens determinatum* (fol. 56vb)
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Qu. 30. *Utrum tantum unus sit summus princeps* (fols 86rb–86vb)

HARALD BERGER

Helmold of Zoltwedel († 1441): His Academic Career, Scientific Works, and Philosophical Alignment*

Introduction

Helmoldus Gledenstede de Zoltwedel is an outstanding figure in the scientific community of Central Europe in the late fourteenth and early fifteenth centuries. Nevertheless, he is rather neglected in modern research[1]. "Helmoldus" is quite a rare forename, another famous bearer of this name in the Middle Ages being Helmoldus Bozoviensis (i.e. of Bosnau), the 12th century author of the *Chronica Slavorum*. The family name "Gledenstede" is reported in the very first document we have regarding Helmold, i.e. a 1383 entry to the *Liber decanorum* of the Faculty of Arts of the University of Prague[2]. It then appears on several further occasions, especially in Helmold's own entry in the Book of Deans from 22 April 1394 ("Ego Helmoldus Gledenstede de Zoltwedel mag. in artibus fui electus in decanum facultatis artium studii Pragensis […][3]") or in the registers of the University of Leipzig, in

* I would like to thank Ota Pavlíček for his careful reading and his most helpful comments on a preliminary version of this study.

1 On him, see mainly (in chronological order) K. Sudhoff, *Die medizinische Fakultät zu Leipzig im ersten Jahrhundert der Universität*, Leipzig, Verlag von Johann Ambrosius Barth, 1909, *passim*; J. Tříška, *Životopisný slovník předhusitské pražské univerzity 1348–1409* [Biographical Lexicon of the Pre-Hussite Prague University 1348–1409], Praha, Univerzita Karlova, 1981, p. 138; F. Šmahel, *Die Prager Universität im Mittelalter / The Charles University in the Middle Ages. Gesammelte Aufsätze / Selected Studies*, Leiden / Boston, Brill, 2007, *passim*; B. Kusche, *„Ego collegiatus" – Die Magisterkollegien an der Universität Leipzig von 1409 bis zur Einführung der Reformation 1539. Eine struktur- und personengeschichtliche Untersuchung*, 2 vols, Leipzig, Evangelische Verlagsanstalt, 2009, *passim*, esp. vol. 2, p. 553–555, no. 45; S. Lorenz, "Thomas Manlevelt. Zu Verbreitung und Wirkung seiner Parva logicalia. Ein Beitrag zur spätmittelalterlichen Wissenschafts- und Universitätsgeschichte Zentraleuropas", in S. Lorenz, S. Molitor (eds.), *Text und Kontext. Historische Hilfswissenschaften in ihrer Vielfalt*, Ostfildern, Jan Thorbecke Verlag, 2011, p. 381–465, at p. 405; C. Colomba, in G. C. Garfagnini, C. Leonardi, F. Santi (eds.), *Compendium Auctorum Latinorum Medii Aevi (500–1500)*, vol. 5, fasc. 3, Firenze, SISMEL Edizioni del Galluzzo, 2016, p. 309–310.

2 *Liber decanorum facultatis philosophicae Universitatis Pragensis ab anno Christi 1367 usque ad annum 1585*, pars I, eds. A. Dittrich, A. Spirk, Pragae, Typis Joan. Nep. Gerzabek, 1830, p. 211.

3 *Liber decanorum facultatis philosophicae Universitatis Pragensis*, pars I, p. 290.

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which Helmold wrote another record, this time as the rector of the university ("Ego Helmoldus Gledenstede de Zoltwedel […][4]"). Occasionally, the family name is spelled "Gledden-", and the toponym "de Zoltwedel" is sometimes spelled "Solt-". Other variants need not be enumerated here, but all refer to the German *Hansestadt* Salzwedel, now in Saxony-Anhalt.

Apart from his place of birth, Salzwedel, known through the toponym just mentioned, nothing at all is known about Helmold before 1383. From the fact that he entered the graduating processes at the Faculty of Arts of the University of Prague in 1383, it can be inferred that he was not born after 1365. If he saw the light of day around 1360, and if it is true that he died in 1441, then he might have reached an age of about 80 years. Helmold's career is clearly divided into two periods, viz. from c. 1380 to 1409 at the University of Prague (founded in 1348) and from 1409 to his death in 1441 at the University of Leipzig (founded in 1409). The famous crisis of 1409 related to the Kuttenberg Decree is the dividing line of the two periods, and apparently also the reason for his leaving Prague. During his university career, Helmold obtained degrees at three faculties, namely those of the Arts (*magister*), of Medicine (*doctor*), and of Theology (*baccalarius*), which is rather rare.

1. Helmold of Zoltwedel's University Career

1.1 Prague, 1383–1409

At the University of Prague, Helmold belonged to the Saxon university nation (*natio Saxonum*)[5]. He was admitted to the bachelor examination at the Faculty of Arts in 1383 and to the masters examination in 1386. No further details of his graduations have been handed down to us in the faculty records. Helmold himself, however, tells us who his Prague teacher was in his treatment of the Liar-paradox composed a few years later:

> Decima opinio est magis moderna, quam tenet magister meus reverendus Conradus de Soltow […]. Et quamvis magister meus reverendus me in materia insolubilium specialiter instruxit, ego tamen contra opinionem suam arguam reverentia sua semper salva […][6].

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4 *Die Matrikel der Universität Leipzig*, 3 vols, ed. G. Erler, Leipzig, Giesecke & Devrient, 1895–1902, I, p. 31.

5 For the following see *Liber decanorum facultatis philosophicae Universitatis Pragensis*, pars I, p. 211–410 *passim*, cf. also p. 19 and 107.

6 MS Leipzig, Universitätsbibliothek, Ms 1348, fols 279v–280r; cf. MS Cracow, BJ, 696, fol 177va; MS St. Florian, Stiftsbibliothek, Cod. XI 627, fols 226rb–va. There follows a quotation of the famous passage from Aristoteles, *Ethica Nicomachea*, I. 4, 1096a11–15, "Amicus Plato, sed magis amica veritas", as Roger Bacon has it succinctly. On this, see, e.g., H. Flashar, *Aristoteles. Lehrer des Abendlandes*, München, C. H. Beck Verlag, 2013, p. 74–75. It is noteworthy that neither Helmold nor Conrad occur in P. V. Spade, *The Mediaeval Liar: A Catalogue of the* Insolubilia-*Literature*, Toronto, Pontifical Institute of Medieval Studies, 1975.

Therefore, Helmold most likely obtained his master's degree in 1386 under the direction of Conrad of Soltau, who was a renowned professor of arts and theology at the Universities of Prague and Heidelberg and who died in 1407 as Bishop of Verden[7]. It is true that in general, we should not overrate the "magister meus" phrases[8], but since this passage also includes the words "me instruxit", it certainly has more significance. Conrad for his part was a pupil of Henry Totting of Oyta (†1397)[9], and obtained his master's degree in 1368. He left Prague in the course of the first severe crisis between the university nations in 1386, when he was rector, and turned towards the newly founded University of Heidelberg[10]. Helmold may thus be understood as an academic son of Conrad of Soltau and a grandson of the illustrious scholar Henry Totting.

Helmold supervised many graduations between 1394 and 1404. According to the records, the numbers go as high as 25 for the bachelor's degree and 12 for the master's degree, thus 37 graduations in total[11], but in reality, there may have been even more. Some of his students, such as Theodericus Praefecti de Zoltwedel and Joannes Bolk de Zoltwedel, originated from his home town of Salzwedel. A St. Florian manuscript containing Helmold's *Quaestiones parvorum logicalium* gives us the name of the scribe who copied the manuscript in 1393 in Prague, and who was apparently an undergraduate student at that time: Wolfgangus Ardinger de Welsa[12]. In 1394 Helmold was elected Dean of the Faculty of Arts[13], and under his direction the faculty issued four statutes[14]. In 1398 he was elected Rector of the University of Prague[15].

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7 On Conrad, see most recently H. Berger, "Zur Pariser Philosophie des Spätmittelalters und ihrer zeitgenössischen Rezeption", in *Bulletin de philosophie médiévale*, 57 (2015), p. 265–325, at p. 300–301, with further literature in n. 84.

8 Cf. W. J. Courtenay, *Schools & Scholars in Fourteenth-Century England*, Princeton / New Jersey, Princeton University Press, 1987, p. 191.

9 On Henry see the standard monograph by A. Lang, *Heinrich Totting von Oyta. Ein Beitrag zur Entstehungsgeschichte der ersten deutschen Universitäten und zur Problemgeschichte der Spätscholastik*, Münster i. W., Aschendorff, 1937; cf. H. Berger in *Heinrich Totting von Oyta, Schriften zur Ars vetus*, ed. H. Berger, München, Bayerische Akademie der Wissenschaften, 2015, p. 7–31; for recent literature, see also the bibliography by H. Berger available online at the Oyta-site of B. Preben-Hansen accessible from: https://preben.nl/oyta.html.

10 Cf., e.g. Šmahel, *Die Prager Universität im Mittelalter*, esp. p. 34–36; M. Nodl, *Das Kuttenberger Dekret von 1409. Von der Eintracht zum Konflikt der Prager Universitätsnationen*, Köln / Weimar / Wien, Böhlau, 2017, esp. ch. II, p. 35–122.

11 Šmahel, *Die Prager Universität im Mittelalter*, p. 256, counts 21 + 14 = 35 graduations.

12 He does not appear in the Book of Deans (*Liber decanorum facultatis philosophicae Universitatis Pragensis*, pars I) nor in Tříška, *Životopisný slovník*. "Welsa" refers to Wels in Upper Austria near Linz where St. Florian is also located.

13 *Liber decanorum facultatis philosophicae Universitatis Pragensis*, pars I, p. 290–296, cf. p. 19.

14 For the statutes, see *Statuta et Acta rectorum Universitatis Carolinae Pragensis 1360–1614*, eds. F. Šmahel, G. Silagi, Praha, Karolinum, 2018, p. 268 (Rubrica X, nos. 10–13).

15 *Liber decanorum facultatis philosophicae Universitatis Pragensis*, pars I, p. 336. This passage apparently does *not* mean that Helmold was a successor to John of Münsterberg in the College of King Wenceslas as I at first glance thought, and as Nodl, *Das Kuttenberger Dekret*, p. 137, n. 341 thinks. It rather means that he succeeded John in the rectorship and that the meeting recorded in the Book of Deans took

Helmold must also have begun his studies of medicine and theology in Prague[16], but unfortunately no records at all are extant. As we will see, later in Leipzig he bears the academic titles "doctor medicinae" and "baccalarius theologiae". In January 1409 he probably participated in Matthias of Knín's quodlibetal disputation with a *quaestio* with which we will deal below[17].

Helmold's last service to the University of Prague was his attendance at the Council of Pisa (1409)[18], the second ambassador of the university being Master Andreas de Broda of the *natio Bohemorum*[19]. The well-known controversy between the Bohemian university nation and the three non-Bohemian (i.e. Bavarian, Polish and Saxon) university nations had already culminated in the issuance of the so-called Kuttenberg (Kutná Hora) Decree by King Wenceslas on the 18th of January 1409[20]. Many members of the non-Bohemian nations saw no way of staying at the University of Prague, and so the famous migration of students and professors from Prague took place. Helmold was among those who turned to Leipzig, where a university was being founded as an effect of events in Prague.

1.2 Leipzig, 1409–1441

In the list of the 46 masters who were admitted to the newly founded University of Leipzig in 1409, Helmold appears as the eighth. Some time later, a scribe added to this entry a marginal gloss stating that Helmold was a doctor of medicine ("doctor medicinae")[21]. At least one of his Prague students was also among the very first masters of the new university[22]. In Leipzig, the home university nation was called "Misnensium", i.e. of Meissen, while the other three were the same as those in Prague, i.e. Bavarian, Polish and Saxon. Helmold again belonged to the Saxon university nation.

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place in that College. Nodl's reference to "MUPr II, 336" contains a typo and should be read "MUPr I/1, 336". On the rectorship see also M. Haasová-Jelínková, *Správa a kancelář pražské university v první době jejího trvání* [The Prague University Administration and Office in Its First Period], Praha, Obec hl. m. Prahy, 1948, p. 32.

16 For the Faculty of Medicine see Šmahel, *Die Prager Universität im Mittelalter*, p. 103–158, on Helmold p. 142, no. 30.

17 The disputation became notorious for Jerome of Prague's performance. See, most recently, Nodl, *Das Kuttenberger Dekret*, p. 239–249.

18 *Liber decanorum facultatis philosophicae Universitatis Pragensis*, pars I, p. 410 *ad annum* 1410 *ex post*. Cf. Šmahel, *Die Prager Universität im Mittelalter*, p. 142, no. 30; Nodl, *Das Kuttenberger Dekret*, p. 281–282.

19 On Andreas see esp. J. Kadlec, *Studien und Texte zum Leben und Wirken des Prager Magisters Andreas von Brod*, Münster, Aschendorff, 1982, on Pisa p. 11. He was a Bohemian Anti-Hussite, see on this recently C. Traxler, "Früher Antihussitismus. Der Traktat *Eloquenti viro* und sein Verfasser Andreas von Brod", in *Archa Verbi*, 12 (2015), p. 130–177.

20 See most recently the thorough study by Nodl, *Das Kuttenberger Dekret*; cf. p. 367 for a German translation of the text. See also, e.g., Šmahel, *Die Prager Universität im Mittelalter*, p. 159–171.

21 Erler, *Die Matrikel*, I, p. 25. Cf. also the entry of the first Dean of the Faculty of Arts, Henry Bernhagen, on 24th of October 1409, in which the fourth master is "Helmoldus de Zoltwedel Saxo" (Erler, *Die Matrikel*, II, p. 89).

22 See Erler, *Die Matrikel*, I, p. 25, no. 25 ("mgr. Iohannes Bolk de Zoltwedel"), cf. II, p. 89, no. 23. Cf. also *Liber decanorum facultatis philosophicae Universitatis Pragensis*, pars I, p. 295 and 378.

The very first rector of the University of Leipzig, in the winter term 1409 was John of Münsterberg (Iohannes de Monsterberg), whom Helmold had succeeded in the Prague rectorship in 1398. As the following entry testifies, Helmold succeeded John in Leipzig too, and in the summer term of 1410 became the second rector of the university:

> Anno domini millesimo quadringentesimo decimo sequenti die beati Ieorrii ego Helmoldus Gledenstede de Zoltwedel, mgr. in artibus, ad gradum baccalariatus sacrae theologiae praesentatus et assumptus, electus fui in rectorem almae universitatis studii Lipkzensis[23].

The unusual wording regarding the degree in theology, which apparently expresses an extraordinary mode of graduation, reoccurs in 1416 when Helmold was elected rector for the second time, now calling himself "doctor medicinae et artium magister"[24]. Earlier, when appointed a vice chancellor in 1413, he was already referred to as "doctor in medicinis"[25]. Furthermore, MS Leipzig, Universitätsbibliothek, Ms 1348, fol. 284v, reveals that Master Helmold's *Questions on the Insolubles* were disputed at Prague and, more importantly, that he was "in post in Lipczk in doctorem medicinae promotus, collegiatus collegii maioris ibidem". It is therefore clear that he obtained his degree in medicine at Leipzig in 1413 at the latest[26]. His degree in theology presents a similar case. If this supposition is correct, he became a bachelor of theology in the very first months of the existence of the University of Leipzig, viz. not after 1410[27]. That manuscript passage and other documents also tell us that Helmold was a member of the *Collegium Maius* of Leipzig University[28]. The Faculty of Medicine, however, was not constituted before 10 July 1415, which is six years after the foundation of the university and at least two years after Helmold gained the title of doctor in medicine. Thus, he must have obtained the title before the faculty was formally founded, perhaps in a similarly extraordinary way as he obtained his title in theology[29]. There is a non-dated list of "nomina doctorum facultatis medicinae studii Lypczensis" (at any rate not later than 1431), in which Helmold appears in the fourth position[30]. The entry immediately following is dated to 9 October 1431 and reports the first two conferments of the degree "doctor medicinae" at the University of Leipzig, which took place under master and

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23 Erler, *Die Matrikel*, I, p. 31.

24 Erler, *Die Matrikel*, I, p. 51.

25 Erler, *Die Matrikel*, II, p. 95, cf. p. lxxxvii, no. 9.

26 Šmahel, *Die Prager Universität im Mittelalter*, p. 142, no. 30, says "Es ist also möglich, daß er erst später in Leipzig und nicht in Prag den medizinischen Doktorgrad erwarb". However, according to the statements quoted above, it is clear that Helmold became a doctor of medicine in Leipzig. Also Kusche, *„Ego collegiatus"*, vol. 2, on Helmold p. 553–555, no. 45, at p. 554, has to be corrected in this respect.

27 Cf. also Sudhoff, *Die medizinische Fakultät*, p. 101 and 102.

28 See on this also Kusche, *„Ego collegiatus"*, esp. vol. 2, p. 554.

29 See Sudhoff, *Die medizinische Fakultät*, p. 5. Cf. E. Bünz, M. Rudersdorf, D. Döring, *Geschichte der Universität Leipzig 1409–2009*, vol. 1, Leipzig, Leipziger Universitätsverlag, 2009, p. 101–102.

30 Erler, *Die Matrikel*, II, p. 69; cf. Sudhoff, *Die medizinische Fakultät*, p. 5–6.

doctor of medicine Helmoldus Gledenstede de Zoltwedel in St Nicholas Church. Helmold himself wrote both the list of names and the entry regarding the graduations. Thus, we also know his hand thanks to this document[31]. Helmold was the second Dean of the Faculty of Medicine, succeeding Gerhardus Hohenkirch (Hogenkerken, † 1429) in 1428[32].

There are several other pieces of information known about Helmold's life. He owned a house in the city called "Zum Fuchszagel" (i.e. "At the Fox's Tail") on the Ritterstraße[33]. In his will, he bequeathed this house to the *Collegium Maius*, and it is through the execution of his will that we know that he died in 1441. Some passages in his writings reflect Helmold's character: His self-confidence is apparent from his aforementioned criticism of his master Conrad of Soltau and from the explicit of the *Quaestiones consequentiarum* (that is of his *Quaestiones parvorum logicalium*, part VI, with which we will deal below):

> Et ab inferiori propositione ad suam superiorem aliquando valet consequentia, propter quod omnium inferiorum et superiorum Mariae filius altissimus rector et magister gloriosissimus, qui omnium philosophorum mentes mirifice ad philosophandum secundavit, cui de praesentis laboris honore peto gratiarum actiones anhelare, nos post hanc vitam [et S] <ad K> caelestem perducat superiorem patriam, cuius nomen super omne nomen in saecula saeculorum sit benedictum. Amen, deo gratias etc[34].

This explicit as well as the other eight of his *Quaestiones parvorum logicalium* also attest that Helmold was a particularly religious scholar, because even his logical works end with special praises of God which go beyond the usual phrase "deo gratias etc"[35].

2. Helmold's Writings

Three of Helmold's works are still extant, viz. a large work on grammar (op. 1), an even larger work on logic (op. 2), certainly his magnum opus, and a *quaestio determinata* on a theological topic (op. 3). Further works, including three on medicine, are attested only, but not known to be extant (op. 4–12). His participation in the famous Knín disputation early in 1409 (op. 8) is interesting, but not at all clear. Surprisingly, there is just one Aristotle commentary (op. 7) among these works, even though Helmold was a staunch adherent of Aristotelianism (see below, § 3.1).

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31 A reproduction can be found in Sudhoff, *Die medizinische Fakultät*, plate I at the end.

32 Sudhoff, *Die medizinische Fakultät*, p. 10.

33 Sudhoff, *Die medizinische Fakultät*, p. 15. Cf. Bünz, Rudersdorf, Döring, *Geschichte*, vol. 1, p. 162; Kusche, *"Ego collegiatus"*, vol. 2, p. 555.

34 **S**, fols 150ra–b; cf. **K**, fol. 121r, as quoted in *Catalogus* (see below under op. 2), V, p. 80.

35 For **K** see the quotations in *Catalogus*, V, p. 79–81, much the same is to be found in **S**.

2.1 Extant Writings

Op. 1: ***Quaestiones de arte grammatica Donati, Prisciani, Alexandri de Villa Dei,*** **Pragae 1390 (vel paulum prius)**
Inc. prol. (**E**, 1ra): <S>INE DUBITATIONE VERITATEM QUAERENTES. Sine dubitatione veritatem quaerentes similes sunt illis, qui transire proponunt, vias autem, per quas transitus compleri debet, nesciunt. Teste Aristotele summo philozophorum principe 3° Metaphysicae. […] /1rb/ […] Utrum grammatica sit scientia.

Inc. qu. 1 (**E**, 1rb): UTRUM GRAMMATICA <sit scientia>. Quod quaestio sit falsa, arguitur sic: Omnis scientia est scientia alicuius determinati subiecti, cuius proprietates et passiones eadem scientia considerat, sed in tota grammatica non reperitur aliquod subiectum, cuius proprietates aut passiones ipsa consideraret, ergo quaestio est falsa.

Expl. (**E**, 67vb): Nam cuilibet enti citra primum possunt diversa accidere accidentia, cum in deo nullum cadit accidens, ad quem nos perducat, qui sine fine vivit et regnat, amen.

Col. (**E**, 67vb): ANNO DOMINI M° CCC NONAGESIMO FINITAE SUNT QUAESTIONES PER MAGISTRUM HELMOLDUM COLLECTAE IN VIGILIA SANCTI MATHIAE APOSTOLI PRAGAE REPORTATAE ETC. HOMO / FRANKIL UND HUNGIL FRA- / NKIL CONVERTUNTUR SIC ET ETIAM / FRANKCH UND HUNCZ FRANKCH / FRENKCHIL UND HUCZ FRENK.

Ms.: **E** = MS Erfurt, Universitätsbibliothek, Dep. Erf., CA. 4° 62, fols 1ra–67vb, anno 1390

Cat.: W. SCHUM, *Beschreibendes Verzeichniss der Amplonianischen Handschriften-Sammlung zu Erfurt*, Berlin, Weidmannsche Buchhandlung, 1887, p. 335.

Notes:
The data provided in the colophon, i.e. "AD 1390", "Magister Helmoldus" and "Pragae", allow no reasonable doubt that it was Helmold of Zoltwedel who composed this work on grammar. Schum gives the title in his catalog description of **E**. The colophon only speaks of "quaestiones" (cf. also **E**, fol. 68r: "Quaestiones magistri Helmoldi xxx grossis"). According to the prologue (**E**, fol. 1ra), the title could also run "Dubia circa materiam Donati, Allexandri et Prisciani". The work comprises around 30 questions[36]. Jan Pinborg and G. L. Bursill-Hall mention it under the name "Hermoldus (!) Pragensis"[37].

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36 Thomas Bouillon of the Universitätsbibliothek Erfurt, Abt. Sondersammlungen, kindly checked the codex for me and counted 29 questions.

37 J. PINBORG, *Die Entwicklung der Sprachtheorie im Mittelalter*, Münster / Kopenhagen, Aschendorff, 1967, 1985², p. 330, no. 48, cf. p. 344, no. 160; G. L. BURSILL-HALL, *A Census of Medieval Latin Grammatical Manuscripts*, Stuttgart-Bad Canstatt, Frommann-Holzboog, 1981, p. 66, no. 81.49.

The transcription of the nonsense in the last lines of the colophon (as well as that of the other passages given above) is my own, and differs slightly from that of Schum.

* * *

Op. 2: *Quaestiones parvorum logicalium*, Pragae 1393 (vel paulum prius)

Inc. (**S**, 1ra, om. **K**): Quaeritur circa tractatus <parvorum logicalium>. Utrum habitus ex notitia suppositionum acquisitus sit scientia. Et arguitur primo, quod non, quia vel esset scientia communis vel specialis. Non communis, quia alias 4^{or} essent scientiae communes, cuius oppositum dicit Aristoteles 4to Methaphysicae.

Expl. (**K**, 183va; **S**, 234vb): Sic etiam iste terminus "deus" in hac propositione "Deus est" significat deum, qui est, et deum, qui erit, et deum, qui potest esse, sed solum *supponit* (**K**, om. **S**) pro deo, qui est, cui sit laus, gloria et honor per infinita saeculorum saecula (*sit benedictus* add. **S**). Amen. *Deo gratias. Cui laus censetur* (**S**, om. **K**).

Col. (**K**, 183va–b): Terminantur quaestiones famosae parvorum logicalium, quarum ordo positionis sic habetur: Primo quaestiones suppositionum, 2^{o} confusionum, 3^{o} ampliationum, 4^{o} restrictionum, 5^{o} appellationum, 6^{o} consequentiarum, 7^{o} Biligam, 8^{o} obligatoriorum, ultimo insolubilium, editae per commendabilem virum Hel/183vb/moldum de Zoltwedel finitae feria quinta ante Hedwigis sub anno domini M^{o} CCC^{o} nonagesimo sexto hora decima nona diei praefati Pragae. Omnia laudate dominum. Laudate dominum grawpe.

Col. (**S**, 234vb–235ra): Expliciunt quaestiones parvorum logicalium, scilicet suppositionum, confusionum, ampliationum, restrictionum, appellationum, consequentiarum, Wiligam, obligatoriorum, insolubilium, Magistri Helmoldi de Zoldwedel finitae per Wolf/235ra/gangum Ardingner de Welsa reportatae in studio Pragensi.

Mss.: **K** = MS Cracow, BJ, 696, fols 1ra–183vb, anno 1396
S = MS St. Florian, Stiftsbibliothek, Cod. XI 627, fols 1ra–235ra, anno 1393
T = MS Tours, Bibliothèque municipale, 725, fols 2r-296r (the text began on fol. 4r and was preceded by a table), bought at Paris in 1446, destroyed in 1940 during World War II

Cat.: *Catalogus codicum manuscriptorum medii aevi Latinorum qui in Bibliotheca Jagellonica Cracoviae asservantur*, vol. V, composuerunt M. Kowalczyk, A. Kozłowska, M. Markowski et al., Wrocław / Warszawa / Kraków / Gdańsk / Łódź, Ossolineum, 1993, p. 79–83; A. Czerny, *Die Handschriften der Stiftsbibliothek St. Florian*, Linz, Franz Ignaz Ebenhöch'sche Buchhandlung, 1871, p. 214; *Catalogue général des*

manuscrits des bibliothèques publiques de France. Départements, vol. 37, pt. 1: *Tours*, par G. Collon, Paris, Librairie Plon, 1900, p. 570–571.

Notes:
There is also a copy of a separate question (part IX, qu. 5), on the so-called Liar, in **L**, fols 274r–284v, cf. **K**, fols 174rb–180ra, and **S**, fols 221vb–230ra:

Superscr. (**L**, 274r): Helmoldus de Soltwedel.

Inc. (**L**, 274r): Quaeritur, utrum casus integer communis insolubilis est admittendus, scilicet iste: Ponatur, quod Sor dicat istam propositionem "Sor dicit falsum" et nullam aliam et quod solus unus homo vocetur hoc nomine "Sor".

Expl. (**L**, 284v): Aliquis potest probare insolubile esse verum et insolubile esse falsum, non tamen hoc realiter probat et vere, quod sit verum et quod sit falsum.

Col. (**L**, 284v): Haec quaestio est quinta inter quaestiones motas circa insolubilia per reverendum Helmoldum de Soltwedel Pragae disputatas magistrum et in post in Lipczk in doctorem medicinae promotum, collegiatum collegii maioris ibidem etc.

Ms.: **L** = MS Leipzig, Universitätsbibliothek, Ms 1348, fols 274r–284v

Cat.: M. Markowski, *Repertorium commentariorum medii aevi in Aristotelem Latinorum qui in Bibliotheca Universitatis Lipsiensis asservantur*, Polska Akademia Umiejętności, Kraków 2012, p. 187, no. 31, cf. p. 215–217.

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A part of MS Erfurt, Universitätsbibliothek, Dep. Erf., CA. 4° 256, looks like an anonymous commentary on Helmold's *Quaestiones parvorum logicalium*, at least in view of the similar incipit, but this will require a closer future examination:

Inc. (**E_2**, fol. 108ra): Utrum habitus ex notitia parvorum logicalium acquisitus sit scientia. Et respondetur, quod sic. Contra: Habitus ex notitia parvorum logicalium non est, ergo. Probatur, quia nec est substantia nec accidens.

Expl. (**E_2**, fols 118vb–119ra): Albertus dicit omnes tales esse simplicis consequentis (?), quia sic resolvi /119ra/ eas "Sor est vel asinus currit" etc. (breaks off).

Ms.: **E_2** = MS Erfurt, Universitätsbibliothek, Dep. Erf., CA. 4° 256, fols 108ra–119ra

Cat.: Schum, *Verzeichniss*, p. 506–507.

Codex **E_2** has a separate old folio-numbering for fols 1–107 and 108–154. The possible anonymous commentary mentioned above (**E_2**, fols 108ra–119ra) has the old

folio-numbers 1–12, further questions on the theory of supposition follow on fols 120ra–149vb[38], while fols 150va–154vb contain questions on the theory of confusions[39]. The "Albertus" referred to in the explicit quoted above is apparently Albert of Saxony (d. 1390).

K begins with "Illa suppositione sic stante arguitur sic: Finis proprius et adaequatus scientiae suppositionum". This passage is in **S** on fol. 2ra which makes it clear that in **K** the first folio (but no more than this) is missing; the incipit of *Quaestiones parvorum logicalium* is thus known only through **S** and Collon's description of **T**.

K has accurate dates for the completion of some of the individual parts (I: July 7, II: August 1, III: August 8, IV: August 12, IX: October 12, all in 1396). Thanks to this dating, it may be concluded that the copying of this extensive work took about three and a half months. It is also noteworthy that Helmold is mentioned as the author of the work not only at the end of the whole opus: Even some of the individual parts of the work are ascribed to him across both **K** and **L**[40].

S has valuable additions on the folios before and after the text proper. On the first folio it reads:

> Iste liber est reportatus per reverendum socium Wolfgangum Ardinger de Welz in studio Pragensi sub anno domini Milesimo trecentesimo nonagesimo tertio et finitus est in vigilia purificationis Mariae virginis gloriosae etc.

Thus, the scribe Wolfgang Ardinger of Wels seems to have studied in Prague, conceivably under Helmold, and then to have joined the Augustinian canonry of St. Florian in Upper Austria, near his home town. At any rate, **S** is a very old possession of this monastery, as the medieval entry at fol. 1r, upper margin attests ("Iste liber est monasterii Sancti Floriani Pataviensis [i.e., of Passau] dyocesis.")[41].

The two unnumbered leaves preceding fol. 1 of **S** further present two schemes of oppositions of sentences (modal and multiply quantified)[42]. Especially interesting, however, are folios 235v–238r at the end of the codex, which include schemes of the ten Aristotelian categories; on fol. 238r it reads:

> Hae tabulae sunt edditae (!) per magistrum Albertum de Saxonia et sunt tabulae, in quibus continentur genera generalissima praedicamentorum, similiter et species subalternae et specialissimae et individua specierum specialissimarum.

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38 MS Erfurt, Universitätsbibliothek, Dep. Erf., CA. 4° 256, fol. 120ra, Inc.: "Quaeritur, utrum diffinitio suppositionis personalis sit bona. Notandum est, quod ista diffinitio continent plures particulas."

39 MS Erfurt, Universitätsbibliothek, Dep. Erf., CA. 4° 256, fol. 150va, Inc.: "Quaeritur, utrum scientia libri confusionum sit notitia realiter distincta a scientia suppositionum. Notandum est primo."

40 For **K** see *Catalogus*, V, p. 79–81, which is very thoroughly done, although it contains some misreadings. The incipits and explicits of the single parts are quite the same in **S** and they do not need to be quoted here.

41 The same owner notice can be found on fol. 234vb of the codex, between the explicit and the colophon.

42 Cf. also fol. 239r with schemes of oppositions of quantified sentences with oblique terms.

Albert of Saxony has indeed written on the Aristotelian categories[43], but that he should have "edited" such schemes (known as Porphyrian Trees) was not previously known.

*

The *Quaestiones parvorum logicalium* are most likely the most voluminous work ever written on the *parva logicalia* with regards to the numbers of parts (nine)[44], questions (around 90, I have counted 89 in Ms. **S**), and manuscript leaves (184 in **K**, 235 in **S**, 293 in **T**).

Part I on the *suppositiones* comprises 14 questions and is clearly based on Thomas Maulfeld's corresponding treatise[45], which can be traced for example in the discussions of the definitions of supposition and its various kinds.

Part II on the *confusiones* comprises 12 questions and is again based on Maulfeld's corresponding treatise.

Part III on the *ampliationes* comprises four questions and is based on Marsilius of Inghen's corresponding treatise, as is evident from the definition of ampliation discussed in the first question.

Part IV on the *restrictiones* again comprises four questions, but I have not been able to determine the basis for this part yet. The definition of restriction discussed here, i.e. "Suppositio termini pro paucioribus suis significatis, quam sine termino ipsum limitante supponeret" (**S**, 87ra), is definitely not that of Marsilius or of Maulfeld[46]. Thomas de Clivis, whose *Logic* is still missing, might be a candidate[47]. In this part, unlike in the other parts, no quotations can be found either, apart from Boethius, *De divisione*.

Part V on the *appellationes* again comprises four questions, and is again based on Marsilius' corresponding treatise.

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43 Albertus de Saxonia, *Quaestiones in Artem Veterem*, ed. A. M. García, Maracaibo, Universidad del Zulia, 1988, p. 291–455, §§ 332–662; Albertus de Saxonia, *Logik. Lateinisch-Deutsch*, ed. H. Berger, Hamburg, Felix Meiner Verlag, 2010, tr. I, pt. 3, ch. 18–25, p. 168–245.

44 A medieval librarian of St Florian wrote on the cover of cod. **S** "Quaestiones consequentiarum et parvorum loycalium, P 29", as if he were unwilling to count the *consequentiae* among the *parva logicalia*. Cf. on this, e.g., A. Maierù, *University Training in Medieval Europe*, trans. and ed. D. N. Pryds, Leiden / New York / Köln, Brill, 1994, p. 120, where Helmold's op. 2 in cod. **K** is also mentioned in n. 18. See also M. J. F. M. Hoenen, "Parva logicalia. Towards the History of a Puzzling Literary Genre", in I. Atucha, D. Calma, C. König-Pralong, I. Zavattero (eds.), *Mots médiévaux offerts à Ruedi Imbach*, Porto, Fédération Internationale des Instituts d'Études Médiévales, 2011, p. 517–526.

45 An edition of some of Maulfeld's logical works by C. Kann and others is forthcoming.

46 For Marsilius see Marsilius de Inghen, *Treatises on the Properties of Terms*, ed. E. P. Bos, Dordrecht / Boston / Lancaster, D. Reidel Publishing Company, 1983, p. 160, l. 14–15. For Maulfeld see A. Piltz, *Studium Upsalense. Specimens of the Oldest Lecture Notes Taken in the Mediaeval University of Uppsala*, Uppsala, Uppsala University, 1977, p. 82, no. 3. I have also checked, e.g., John Buridan and Albert of Saxony. See furthermore, e.g., A. Maierù, *Terminologia logica della tarda scolastica*, Roma, Olschki, 1972, ch. II, p. 139–193.

47 Cf. E. P. Bos, *Logica modernorum in Prague about 1400*, Leiden / Boston, Brill, 2004, p. 445–446, cf. also p. 265–266. It has to be noted, however, that as far as I can see, Thomas de Clivis is not among the many contemporary logicians quoted by Helmold. Could Helmold have used an unknown version of Marsilius' treatise, then? On such versions see E. P. Bos in Marsilius de Inghen, *Treatises*, p. 38–39 and 230.

Part VI on the *consequentiae* comprises 12 questions and is based on Maulfeld's corresponding treatise. Helmold quotes this treatise as Maulfeld's and is therefore a witness of the authenticity of this work[48].

Part VII on Richard Billingham's *Speculum puerorum*, also called *Terminus est in quem* according to its incipit, comprises 20 questions. I have compared the Billingham quotations put forward in this part of the *Quaestiones* with the five versions of the *Liber Billingham* edited by L. M. de Rijk[49]. Some of these quotations, however, do not fit any of these versions, which may mean that Helmold used an unknown further version. This is especially true of the definition of the *terminus officiabilis* which Helmold puts in the following words: "Terminus importans officium mentis vel quaecumque sunt respectu alicuius complexi etc." (**K**, 137vb; **S**, 173ra)[50]. This part is the only one of all the nine that also has a prologue, from which we learn that Helmold regards parts VII–IX (*probationes propositionum*, *obligationes*, *insolubilia*) as a certain unity. He also states here that "de praetacta materia (sc. probationum propositionum) non vidi quaestiones elaboratas" which explains why quotations are rare in this part, the only two being Johannes Balbus (*Katholicon*) and Maulfeld on the concepts of *incipit* and *desinit*. He could and should have quoted John Wyclif here, though, on whom he depends in some respects regarding the *probationes propositionum*[51]. In qu. 2, note 6, Helmold states that the *Liber Biligam* is sometimes called *De veritate et falsitate propositionum* and then adds "de qua veritate in praesentibus quaestionibus non intendo scribere, sed speciales de hoc, si deus annuerit, conscribam quaestiones" (**K**, 122vb; **S**, 152rb). It is unclear whether he realized this plan.

Part VIII on the *obligationes* comprises 13 questions and is based on the corresponding treatise by William Buser[52] and partly also on that by John of Holland[53].

Part IX on the *insolubilia* comprises six questions and is based on the corresponding treatise by John of Holland[54]. Qu. 5 is devoted to the famous case of the so-called Liar, and it is especially here that Helmold quotes many contemporary authors, among whom is his master Conrad of Soltau, which quotation has already been mentioned above[55].

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48 Cf., e.g., Thomas Manlevelt, *Questiones libri Porphirii*, ed. A. van der Helm, Leiden / Boston, Brill, 2014, p. 15 and n. 5.

49 L. M. de Rijk (ed.), *Some 14th Century Tracts on the Probationes terminorum*, Nijmegen, Ingenium Publishers, 1982, p. 45–186. Cf. also A. Maierù, "Lo *Speculum puerorum sive Terminus est in quem* di Riccardo Billingham", in *Studi Medievali*, 10–3 (1969), p. 297–397.

50 Cf. de Rijk, *Some 14th Century Tracts*, p. 52, 86, 122, 150, 176.

51 I learned this from Mark Thakkar's contribution at the workshop on Proofs of Propositions in Fourteenth-Century Logic, organized by S. Read and M. Thakkar, University of St Andrews, 23rd and 24th of May 2017. Helmold *does* quote Wyclif, however, in the first part on suppositions, qu. 4, Ms. **S**, fol. 12ra, see below.

52 L. Pozzi, *La coerenza logica nella teoria medioevale delle obbligazioni. Con l'edizione del trattato «Obligationes» di Guglielmo Buser*, Parma, Edizioni Zara, 1990, p. 59–249.

53 Iohannes de Hollandia, *Four Tracts on Logic (Suppositiones, Fallaciae, Obligationes, Insolubilia)*, ed. E. P. Bos, Nijmegen, Ingenium Publishers, 1985, p. 87–121.

54 Iohannes de Hollandia, *Four Tracts on Logic (Suppositiones, Fallaciae, Obligationes, Insolubilia)*, p. 123–146.

55 I intend to analyze in detail and edit this interesting piece.

As we will see below (op. 5), it seems that Helmold composed not only these voluminous questions, but also treatises on the *parva logicalia*.

* * *

Op. 3: *Quaestio determinata*, Lipsiae (?), 1410 (?)
Inc. (**L_2**, 384ra): Utrum summa dei sapientia, cuius legem aeternam participant omnia alia agentia, omnem veritatem possibilem distinctissime unico actu simplicissimo per eius puram essentiam in propria forma cognoscat. In ista quaestione tria principaliter supponuntur et quartum quaeritur.

Expl. (**L_2**, 391ra): Ista correlaria specialiter ad praesens non probo causa brevitatis, quia manifeste deduci possunt ex corpore totius quaestionis.

Col. (**L_2**, 391ra): Explicit quaestio determinata a reverendo magistro Helmoldo de Soltwedel.

Ms.: **L_2** = MS Leipzig, Universitätsbibliothek, Ms 1423, fols 384ra–391ra

Cat.: Markowski, *Repertorium*, p. 197, no. 74.

Notes:
Helmold's question is followed by two small questions of his Prague teacher Conrad of Soltau at fol. 391ra–vb, which might signify that this manuscript or its model is of Prague origin. If this were true, this *Quaestio determinata* too could date to Helmold's period in Prague. Larger portions of the beginning and the end of Helmold's text have been transcribed by Sudhoff[56]. Although Karl Sudhoff is a famous historian of medicine and science, he speaks of this piece from the viewpoint of typical anti-scholastic cliché, using such phrases as "von extremster Sterilität und Langweiligkeit", "dialektische Gliederverrenkung" and so on. Because the colophon gives only the title "magister", Sudhoff dates the work to Helmold's early time at Leipzig, i.e. to the summer term of 1410 when Helmold was elected rector and said of himself that he was "ad gradum baccalariatus sacrae theologiae praesentatus et assumptus". In Sudhoff's view, Helmold made a speech on this occasion[57], which has come down to us as this *Quaestio determinata*.

In this work, Helmold quotes some "old" authorities, such as Thomas Aquinas, Albert the Great, Robert Grosseteste, Proclus and Hermes Trismegistus.

* * *

56 Sudhoff, *Die medizinische Fakultät*, p. 101 and 102.

57 Sudhoff, *Die medizinische Fakultät*, p. 102: "Wir haben es also wohl bestimmt mit Helmolt Gledenstedes Promotionsrede bei der feierlichen Bestallung mit der theologischen Baccalariatswürde zu tun."

2.2 Attested yet Undiscovered Writings

Op. 4: *Commentum secundae partis Alexandri <sc. de Villa Dei>*
An old library catalogue of the Carthusian monastery of Salvatorberg in Erfurt contains the entry "Secunda pars Alexandri, commentum est valde bonum cum quaestionibus et sophismatibus per quendam magistrum Pragensem"[58]. In the index to this volume of *Mittelalterliche Bibliothekskataloge Deutschlands und der Schweiz*, this work is listed under "Helmoldus de Soltwedel" as his possible work[59], presumably in the light of Helmold's *Quaestiones de arte grammatica* (op. 1).

* * *

Op. 5: *Parva logicalia*
An entry in an old catalogue of the University College in Erfurt, "Parva loycalia magistri Helmolde (!) de Soltwedel et quaestiones eiusdem" (another reads "omnium parvorum logicalium" instead of "eiusdem")[60], suggests that Helmold composed not only questions (op. 2), but also treatises on the *parva logicalia*.

* * *

Op. 6: *Quaestiones de veritate et falsitate propositionum*
As is evident from the aforementioned prologue to the *Quaestiones Byligam*, part VII of op. 2, Helmold planned to compose such a work.

* * *

Op. 7: *Quaestiones Parvorum naturalium <sc. Aristotelis>*
An old register of donors and donations to the University College at Erfurt says "Item quaestiones parvorum naturalium mag. Helmoldi dedit dominus Otto Wolfstengel, baccalaurius, religiosus in monte s. Petri, in nigris asseribus"[61]. Charles H. Lohr thinks that this is a confusion with the *Quaestiones parvorum logicalium* (Op. 2)[62]. However, it does not follow from the mere fact that the latter work also appears in old catalogs of the same College[63] that the title *Quaestiones parvorum naturalium* is due to a confusion. Consequently, this entry should be taken seriously.

* * *

58 *Mittelalterliche Bibliothekskataloge Deutschlands und der Schweiz*, vol. 2, ed. P. Lehmann, München, C. H. Beck, 1928, p. 488, l. 38–39.
59 *Mittelalterliche Bibliothekskataloge Deutschlands und der Schweiz*, vol. 2, p. 693.
60 *Mittelalterliche Bibliothekskataloge Deutschlands und der Schweiz*, vol. 2, p. 218, l. 27, cf. p. 170, l. 3.
61 *Mittelalterliche Bibliothekskataloge Deutschlands und der Schweiz*, vol. 2, p. 116, l. 8–10.
62 C. H. Lohr, *Latin Aristotle Commentaries*, vol. I.1: *Medieval Authors A-L*, Firenze, SISMEL, 2013, p. 189.
63 *Mittelalterliche Bibliothekskataloge Deutschlands und der Schweiz*, vol. 2, p. 170, l. 3, and p. 218, l. 27.

Op. 8: *Quaestio quodlibetalis*, Pragae 1409
The quodlibetal disputation at the Faculty of Arts of the University of Prague which had been prepared and organized by Matthias of Knín since June 1408 took place in January 1409, i.e. at the end of Helmold's career at Prague. This event is temporally as well as causally closely related to the issuance of the Kuttenberg Decree, as was already noted above. According to Jiří Kejř[64], one of the questions in this *quodlibet* was proposed by the *quodlibetarius* to Helmold, viz. qu. no. 49:

Inc. (**P**, 56r): Quaeritur, utrum stante fato et divina providentia possint existere effectus casuales fortuiti ad utrumlibet contingentes. Arguitur, quod non, quia fato et divinae providentiae repugnat existere aliquem effectum casualem fortuitum ad utrumlibet contingentem, ergo quaestio est falsa.

Expl. (**P**, 57v): Item sequitur, quod omne falsum foret impossibile et omne verum necessarium. Consequens est contra totam logicam et consequentia satis plane potest deduci, igitur etc.

Ms.: **P** = MS Prague, KMK, Cod. L. 45, fols 56r–57v

Cat.: A. Podlaha, *Soupis rukopisů knihovny Metropolitní kapitoly pražské* [A Catalog of Manuscripts of the Prague Metropolitan Chapter], vol. 2, Praha, Česká akademie věd a umění, 1922, p. 226, no. 1288.

Notes:
It is not known, however, whether Helmold actually worked out this question and participated in the quodlibet. The arguments *quod non*, *quod sic* etc. are preparations made by the *quodlibetarius*. The name "Helmoldus" occurs explicitly in the lower margin of fol. 56r, on the left of two lines which read "Quare, ut ait Christoforus de Honestis libro tractatu 2° de venenis[65], morsus a cane rabido non cognoscit se, dum inspicit speculum, et timet aquam, cum tamen sit propter rabiem sitibundus". Such "quare"-questions, as distinct from "utrum"-questions, were intended for relaxing the audience[66].

* * *

64 J. Kejř, *Kvodlibetní disputace na pražské universitě* [Quodlibetal Disputations at the University of Prague], Praha, Universita Karlova, 1971, p. 77–90 and 116–136, on Helmold see p. 57, no. 13, and p. 124, no. 49, cf. also p. 152, no. 20; Šmahel, *Die Prager Universität im Mittelalter*, p. 379, no. 9; Nodl, *Das Kuttenberger Dekret*, p. 239–249, cf. also p. 198–201; and most recently O. Pavlíček, "Parisian and Prague *Quodlibeta* Compared. The Transfer of the Quodlibetal Disputation between the Faculties and Jerome of Prague's Struggle against the Thematic Limitations Imposed on the Faculty of Arts", in E. Jung (ed.), *What is New in the New Universities? Learning in Central Europe in the Later Middle Ages (1348–1500)*, Warszawa, Wydawnictwo IFiS PAN, 2018, p. 325–356.

65 Apparently, the text should read "libro de venenis tractatu 2°".

66 See on this Pavlíček, "Parisian and Prague *Quodlibeta*", p. 336.

Op. 9: *Quaestio quodlibetalis*, Lipsiae
Superscr. ($\mathbf{L}_3$, 189v): Supremum Influens.

Titulus ($\mathbf{L}_3$, 189v): U(trum) supremi influentis rerum influxus omnipotentia mundi movens orbes per caeli naturam sine ipsius resistentia sit voluntas in agendo liberrima sua infallibili sapientia.

Ms.: $\mathbf{L}_3$ = MS Leipzig, Universitätsbibliothek, Ms 1400, fol. 189v

Notes:
A note in the left margin of L_3 reads "In 3° quolibet M. Helmoldus de Zoltwedel" and another one in the right margin reads "via moderna, partim Alberti" (see also below, chapter 3.1). There are also other such entries to this manuscript page, which are treated in a study by Hans-Ulrich Wöhler[67].

* * *

Op. 10: *Practica medicinalis*

Op. 11: *Regimen sanitatis*

Op. 12: *Lectura super Avicennam immensa*

Notes:
The works listed as op. 10–12, "et alia pleraque", are mentioned by Conradus Wimpina († 1531) as available "passim in libraria Lipzensi", which most likely means the university library in Leipzig[68]. Since not much is known of Helmold's medical writings, these references are noteworthy.

3. Helmold's Philosophical Alignment

3.1 Aristotle, Nominalism and the Wegestreit

First of all, it must be stated that Helmold is a staunch Aristotelian. This is certainly not surprising for a scholar active around 1400, although there was, for example, a fascinating attack on Aristotelianism by Nicholas of Autrecourt in the third and

67 H.-U. Wöhler, "Die erste philosophische Fakultät in Sachsen bis zum Beginn der Reformation im lokalen, regionalen und überregionalen Kontext", in *Bochumer Philosophisches Jahrbuch für Antike und Mittelalter*, 13 (2008), p. 217–240, in particular p. 221–225.

68 *Conradi Wimpinae Scriptorum insignium, qui in celeberrimis praesertim Lipsiensi, Wittenbergensi, Francofurdiana ad Viadrum academiis, a fundatione ipsarum usque ad annum Christi MDXV floruerunt, Centuria*, ed. J. F. L. T. Merzdorf, Lipsiae, Julius Wunder, 1839, p. 28, with a note by Merzdorf on p. 28–29. Cf. also C. G. Jöcher, *Allgemeines Gelehrten-Lexicon*, vol. 2, Leipzig, Johann Friedrich Gleditschens Buchhandlung, 1750, col. 1023, s. n. "Glodenstede".

fourth decades of the fourteenth century. This seems, however, particularly distinctive of Helmold, as is nicely illustrated by the prologue to his *Quaestiones de arte grammatica*, **E**, fol. 1ra–b, in which Aristotle is quoted no less than five times, although grammar is one of the very few sciences in which Aristotle was *not* an authority. Even the incipit mentioned above of *Quaestiones de arte grammatica*, "Sine dubitatione veritatem quaerentes […]", is a passage from Aristotle's *Metaphysics* III. 1, 995a–b, called here the "summus philosophorum princeps"[69]. The second quote, "Ad utrumque dubitare potentes facile speculabimur verum et falsum", *Topics* I. 2, 101a, is also the incipit of Richard Kilvington's *Sophismata*, a famous scholastic work[70]. The third quote, "Dubitare de singulis non est inutile", comes from *Categories* 7, 8b. The fourth quote, "Dubi(tat)orum solutio est veritatis inquisitio", is again from *Metaphysics* III. 1, 995a, a passage which also serves as the incipit of Helmold's *Quaestiones Byligam*, part VII of his *Quaestiones parvorum logicalium*. Finally, the fifth quote, "Si veritas et amicitia dissentiunt, plus insistendum est veritati quam amicitiae", comes from the *Nicomachean Ethics*, book I, 1096a, a famous passage which also occurs in Helmold's critique of his teacher Conrad of Soltau's solution to the Liar-paradox referenced above. The very first page of *Quaestiones de arte grammatica*, **E**, fol. 1ra–b, has besides the prologue the beginning of qu. 1 as well, and there are two more references to Aristotle, more precisely to the *Posterior Analytics* I and the *Metaphysics* IV[71]. This single page of a grammatical work thus presents no fewer than seven quotations of Aristotle in total[72]. Considering this alignment to Aristotle, it is all the more surprising that apart from his *Quaestiones Parvorum naturalium* listed above among his attested works, no commentary on Aristotle by Helmold seems to be extant, at least under his name.

Secondly, Helmold is an adherent of the nominalist or conceptualist current, the members of which were also known as the "terministae" or "singularistae", in contrast to the "universalistae"; soon, this would become known as the "via moderna" as opposed to the "via antiqua", the competition of which culminated in the famous *Wegestreit* of the fifteenth century[73]. Helmold's ontological commitment is

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69 As far as I can see, the epithet "princeps philosophorum" is quite usual, whereas the additional superlative "summus" is not that frequent.

70 N. Kretzmann, B. E. Kretzmann (eds.), *The Sophismata of Richard Kilvington*, Cambridge, Cambridge University Press, 1990, the incipit is on p. 1, l. 1–2. Helmold refers to Kilvington ("Climiton") several times in his *Quaestiones parvorum logicalium*.

71 **E**, fol. 1rb: "[…] patet per philosophum in primo Posteriorum dicentem 'Omnis scientia una est unius determinati generis eius proprietates et passiones considerans' et confirmatur idem per philosophum in quarto Metaphysicae dicentem sic 'Unusquisque unus se solo est unius proprii sensibilis, ita una quaeque scientia est unius proprii scibilis.'"

72 Aristotle is also quoted very frequently in the *Quaestiones parvorum logicalium* from the very first column onward.

73 Cf. Berger, "Zur Pariser Philosophie des Spätmittelalters und ihrer zeitgenössischen Rezeption", p. 265–325, in particular p. 295–296. On the *Wegestreit* see, e.g., M. J. F. M. Hoenen, "*Via Antiqua* and *Via Moderna* in the Fifteenth Century: Doctrinal, Institutional, and Church Political Factors in the *Wegestreit*", in R. L. Friedman, L. O. Nielsen (eds.), *The Medieval Heritage in Early Modern Metaphysics and Modal Theory, 1400–1700*, Dordrecht / Boston / London, Kluwer Academic Publishers, 2003, p. 9–36, and the references there, esp. F. Ehrle 1925 and A. Zimmermann 1974.

especially clear from his discussions of the *suppositio simplex* in *Quaestiones parvorum logicalium*, pt. I, qq. 4, 6 and 7, where he rejects Platonic realism on the basis of Aristotle's authoritative refutation of the theory of forms in *Metaphysica* VII. Thus, using Mieczysław Markowski's coinage, Helmold is yet another Prague proponent of Buridanism at the end of the fourteenth century[74]. Buridan is explicitly referred to in a passage to the effect that *ydeae* as *universalia principalia in existendo* are to be replaced by concepts as *universalia principalia in repraesentando*[75]. By that time, however, realism had become attractive among the Bohemian university nation, mainly through the reception of the writings of John Wyclif (†1384); in the light of this process, Jerome of Prague (†1416) spoke of the nominalists as "dialectici haeretici"[76].

We have already seen, in the section on a *quaestio quodlibetalis* (op. 9), that Helmold disputed a quodlibetal question from the viewpoint of the *via moderna*, but partly also from that of the *via Alberti*. The *via antiqua* is called *via Alberti et Thomae* here, i.e. according to Albert the Great (†1280) and Thomas Aquinas (†1274). Since the topic of this question seems to be theological (although the disputation took place at the Faculty of Arts)[77], this could mean that Helmold was a "progressive" nominalist as a philosopher, but that as a theologian he also respected the "conservative" *via antiqua*, as is also the case, for example, of Marsilius of Inghen and Henry Totting of Oyta.

3.2 Authors Referred to in Helmold's *Quaestiones parvorum logicalium*

Without aiming at completeness, I provide here a list of writers quoted by Helmold in his *opus magnum*, the *Quaestiones parvorum logicalium* (all references are to ms. **S**).

John Duns Scotus
A most valuable quotation is in pt. I, qu. 3, "Utrum diffinitio suppositionis est bona" etc., fol. 6rb, regarding John Duns Scotus (d. 1308):

> Sed Scotus istam ponit diffinitionem: "Suppositio est significatio termini extremalis."

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74 M. Markowski, *Burydanizm w Polsce w okresie przedkopernikańskim*, Wrocław / Warszawa / Krákow / Gdańsk, Ossolineum, 1971. There is also a partial German translation: Markowski, *Der Buridanismus in Polen in der vorkopernikanischen Periode*, ed. J. Drucks, tr. H.-U. Wöhler, Saarbrücken, Südwestdeutscher Verlag für Hochschulschriften, 2012. See also B. Michael, *Johannes Buridan: Studien zu seinem Leben, seinen Werken und zur Rezeption seiner Theorien im Europa des späten Mittelalters*, 2 vols, Berlin, Diss. Freie Universität Berlin, 1985, on the reception at Prague vol. 1, p. 334–340.

75 Op. 2, pt. I, qu. 6, "Utrum diffinitio suppositionis simplicis est bona", **S**, fol. 20avb, cf. also col. va.

76 Cf., e.g., Nodl, *Das Kuttenberger Dekret*, p. 176, cf. p. 246; C. Prantl, *Geschichte der Logik im Abendlande*, vol. 4, Leipzig, S. Hirzel, 1870, repr. Graz 1955, p. 39–40, n. 156; N. W. Gilbert, "Ockham, Wyclif, and the ‚via moderna'", in A. Zimmermann (ed.), *Antiqui und Moderni*, Berlin / New York, de Gruyter, 1974, p. 85–125, at p. 106, n. 58. Already at the end of the 11th century, Anselm of Canterbury used the swearword "dialecticae haeretici", see *S. Anselmi opera omnia*, ed. F. S. Schmitt, vol. 2, Romae, Officina Sansaini et Soc., 1940, p. 9, l. 21–22, which is the famous "flatus vocis" passage in *Epistola de incarnatione verbi*.

77 Cf. Wöhler, "Die erste philosophische Fakultät", p. 221.

In a recent study on Scotus' theory of supposition, the author says that in Scotus' writings he could not find any explicit definition of supposition[78]. As we see, however, Helmold seems to have known one. This citation is confirmed by an entry in an old catalog of the library of the *Natio Bohemorum* at Prague, where "Suppositiones Scoti" are listed[79]. It is conceivable that Helmold and this entry refer to an unknown work of Duns Scotus, which might be identified with the help of the quote in Helmold, if it were still extant anonymously. Of course, the references in Helmold and in MS Uppsala, UB, C 599, as well as the catalog entry, could be incorrect after all, or they could refer to a Scot other than the famous John Duns. However, I find this latter possibility very unlikely.

Hugo, Marsilius, Maulfeld and Ockham

One of the mysteries of late medieval philosophy or logic is a certain Hugo, who is quoted very frequently in logical works (in Helmold on fol. 9va and *passim*), but who could not be identified until recently. Sönke Lorenz surmised on the basis of the manuscript tradition that he was a *magister artium* at a university in Central Europe[80]. Meanwhile, I have identified the Hugo who commented on Marsilius of Inghen's *Parva logicalia* as Hugo of Hervorst, a *Parisian* Master of Arts[81]. It is noteworthy that on fol. 14ra, it reads "Hugo cum suis sequacibus".

Hugo is often quoted by Helmold together with Marsilius of Inghen. On fol. 33va, for example, we read "Wilhelmus Occan in logica sua et Hugo et Marsilius in eorum quaestionibus". This passage is important, as it is further evidence that Marsilius of Inghen not only composed his influential treatises on the *parva logicalia*, but also sets of questions on this subject, as I have previously conjectured on other grounds[82].

Thus, William of Ockham (†1347) is also quoted by Helmold, as is Ockham's prominent realist opponent Walter Burley († c. 1345) on, e.g., fol. 5vb. The realist authors appearing in Helmold's work further include John Duns Scotus, John Wyclif, and Richard Brinkley.

As we saw in the overview of the *Quaestiones parvorum logicalium*, Thomas Maulfeld is a vital author and authority for Helmold, three of the nine parts being based on Maulfeld's treatises. The spelling of Thomas's second name varies notoriously, and in **S** it is mostly spelled "Mawl[d]", i.e. "Mawlfeld". The spelling with "n" in

78 C. Marmo, "Scotus on Supposition", in *Vivarium*, 51 (2013), p. 233–259, in particular p. 236. For a similar definition see, e.g., MS Vienna, ÖNB, Cod. 5248, fol. 89v, as quoted in H. Berger, "Bericht über die Autopsie von vier spätmittelalterlichen Wiener Handschriften", in *Bulletin de philosophie médiévale*, 53 (2011), p. 333–347, at p. 342, no. 20. Cf. also Piltz, *Studium Upsalense*, p. 301–302, l. 16–17.

79 *Catalogi librorum vetustissimi Universitatis Pragensis / Die ältesten Bücherkataloge der Prager Universität*, eds. Z. Silagiová, F. Šmahel, Turnhout, Brepols, 2015, p. 143, l. 327–328.

80 S. Lorenz, "Welcher Hugo? Spurensuche in spätmittelalterlichen Logik-Handschriften", in O. Auge, C. Dietl (eds.), *Universitas. Die mittelalterliche und frühneuzeitliche Universität im Schnittpunkt wissenschaftlicher Disziplinen. Georg Wieland zum 70. Geburtstag*, Tübingen / Basel, Francke Verlag, 2007, p. 91–116.

81 H. Berger, "Which Hugo? This One! Hugo de Hervorst", in *Vivarium*, 58 (2020), p. 89–110.

82 Berger, "Zur Pariser Philosophie", p. 296–298, 306–308, 318.

the modern literature, i.e. "Manlevelt" and the like, is, in my view, by far the worst option, since "n" and "u" are almost indistinguishable in late medieval manuscripts and the reading "Maul-" is far more convincing than "Manl-".

Buridan, Albert of Saxony, John of Holland and William Buser
Wiridanus, i.e. John Buridan († c. 1361), is also quoted by Helmold (for example on fol. 10vb) as is Albert of Saxony (for example fol. 20[a]ra). Thus, the most important Parisian nominalists, along with Marsilius, were on Helmold's bookshelf, as was Holandrinus, i.e. John of Holland (fl. 1365–1370), who was a proponent of that current in Prague (fol. 11ra and *passim*). Another Parisian master studied by Helmold is William Buser (fl. 1356–1371), see esp. pt. VIII on the *obligationes*.

Wyclif and other English authors
As already noted, Helmold does not quote Wyclif in the passages of pt. VII where his treatise undoubtedly depends on the English master[83]. Still, he quotes him explicitly in pt. I, qu. 4, fol. 12ra:

> Wicklef in logica sua concedit unam et eandem propositionem esse veram et falsam respectu diversorum.

Regarding British authors, besides the aforementioned Ockham, Burley and Wyclif, there are references to Wiligam (Richard Billingham; cf. fol. 15va and esp. pt. VII), Brinkel (Richard Brinkley), Dulminton (John Dumbleton), Hesbri (William Heytesbury) and Climiton (Richard Kilvington), who are all quoted especially in pt. IX, qu. 5 which deals with the Liar-paradox.

Conrad of Soltau and other Prague masters
Concerning scholars from his home University of Prague, besides John of Holland Helmold mainly appreciates Conrad of Soltau.

Helmold is thus in line with a statute of the University of Prague from the 4[th] of April 1367, to the effect that famous authors of the Universities of Prague, Paris, and Oxford should be used in the so-called *pronuntiationes*[84]. However, even without such a regulation, it would have been clear that these were the leading sources for philosophical and theological literature at that time and place. For his part, Helmold is a valuable source for modern research on philosophy and logic at the end of the fourteenth century.

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83 See esp. Iohannes Wyclif *Tractatus de logica*, ed. M. H. Dziewicki, vol. I, London, Trübner & Co., 1893, *Logicae continuatio*, tr. I, cap. 2, p. 79–81. A new critical edition of Wyclif's *Logica* is being prepared by Mark Thakkar at St Andrews. Mark kindly pointed out to me that the quotation in Helmold's qu. I.4 refers to Iohannes Wyclif, *Tractatus de logica*, tr. I, cap. 1, p. 77.

84 *Statuta et Acta rectorum Universitatis Carolinae Pragensis*, p. 235–236 (I, 8, "De modo pronuntiandi").

Appendix
Critical Edition of a *Quaestio* on the Proving and Disproving of Sentences from Helmold of Zoltwedel's *Quaestiones parvorum logicalium*

What follows is an edition of a *quaestio* from Helmold's *Quaestiones parvorum logicalium*, specifically question 4 on the provability of sentences, which is included in part VII related to the *Liber Billingham*, **K**, fols 124va–125rb, and **S**, fols 154va–155rb. This piece was chosen for its interesting philosophical reflections on semantic, logical, and even epistemological concepts related to various ways of proving (*probare*) and disproving (*improbare*) sentences in view of both Aristotle's *Posterior Analytics* and Billingham's *Speculum*. Likewise, it is a remarkable document of both the tradition of commenting on Billingham and Wyclif's reception. As repeatedly noted, Helmold does not explicitly cite Wyclif here, although he uses his treatise. At the same time, he does not simply copy him either. Last but not least, I chose this qu. VII.4 also because its extension allows a taste of Helmold's thought without being as long as most of the other interesting questions on suppositions, consequences, insolubles and the other topics of the *Quaestiones parvorum logicalium*.

I have transcribed the older **S** (dated to 1393 and thus three years older than **K**) and compared it with **K**; in cases where **K** has the correct or better reading, I have followed this MS. I have changed the medieval orthography mostly to a classical one. Punctuation and other measures of structuring are mine.

In order not to produce a plethora of notes to the critical edition, I have not listed transpositions of words if this does not affect the sense, as is the case, for example, even with the title of the question, where **S** has "istorum modorum 4^{or}" and **K** has "istorum 4^{or} modorum". Also the technical terms "resolubiliter, componibiliter, exponibiliter, officiabiliter" are in **S** often listed in varying orders. The varying spelling of Billingham's name is also not listed. It is mostly spelled "Wil" or "Wili" (i.e., Wiligam) in **S** and "By^{am}" (i.e., Byligam) in **K**.

As to the content of this piece, the central notions discussed by Helmold are proving (*probare*) and disproving (*improbare*). He defines them as showing (*ostendere*) the truth or falsity of a sentence (*propositio*), which is a definition also present in Wyclif[85] and the *sophismata* literature regarding the proving and disproving of sophisms[86]. Showing the truth of sentences may happen in three ways:

(1) from the senses alone;
(2) from understanding alone;
(3) from the senses together with understanding.

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85 Iohannes Wyclif, *Tractatus de logica*, tr. I, p. 76, l. 5–6.

86 Cf., e.g., the fourteenth century text edited in H. Berger, "Bibliotheca Amploniana Erfordensis. Zu einigen Verfassern, Schriften, Schreibern und Vorbesitzern von und in amplonianischen Handschriften", in *Jahrbuch für mitteldeutsche Kirchen- und Ordensgeschichte*, 11 (2015), p. 311–333, in particular p. 333.

These distinctions are borrowed from Wyclif[87] similarly to the following modes of proving sentences[88] which, according to Helmold, are quadruple:

(1) *a priori*, i.e. when a sentence is proved by an appropriate cause or reason, as in Helmold's example where a property (*proprium*) of something is proven by its essence (for example in the sentence "Sor est risibilis, quia Sor est animal rationale mortale"); note that this (viz. risibilis – animal rationale mortale) is a conceptual relation, at least with Aristotelianism. Unfortunately, the texts of neither **K** nor **S** appear to be entirely sound here;

(2) *a posteriori*, i.e. when a sentence is proved by an appropriate effect, as in "*Sol obumbrescit, quia sol eclipsatur*"; note that this is a causal relation;

(3) *ab aequo*, i.e. when a sentence is proved by its interpreting or analyzing sentences (*exponentes*); this mode is called "from the equal", because the *propositio exposita* and its *exponentes* are logically equivalent;

(4) *ex opposito*, when a sentence is indirectly proved by showing its contradictory sentence to be false.

These four modes are different from Billingham's modes of proving *resolubiliter*, *componibiliter*, *exponibiliter*, and *officiabiliter*[89], wherefore the latter are not the only way of proving sentences and the *quaestio* ("Utrum omnis propositio probabilis altero istorum quattuor modorum, scilicet resolubiliter, componibiliter, exponibiliter et officiabiliter, sit probabilis") is accordingly to be settled in the negative.

Billingham's four ways of proving sentences presuppose that there are terms in those sentences which are analyzable (*termini mediati*). Sentences without such terms are called "propositiones immediatae", i.e. not analyzable or not provable sentences, and Helmold distinguishes three senses of the term "propositio immediata":

(1) *simpliciter*, i.e. when a sentence has no medium at all by which it could be proved; in this absolute sense no true sentence at all is immediate;

(2) *secundum quid*, i.e. conditionally, and this is again to be distinguished:

(2. 1) when a sentence cannot be proved by a demonstrative proof, as is the case with first principles, and it is this sense which Aristotle uses in the *Posterior Analytics*;

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87 Iohannes Wyclif, *Tractatus de logica*, tr. I, p. 79, l. 4–19.

88 Iohannes Wyclif, *Tractatus de logica*, tr. I, p. 79–80, l. 20–11.

89 Cf., e.g., de Rijk, *Some 14th Century Tracts*, p. *4*–*5*, according to Ivan Boh. The term "componibiliter" is simply the counterpart to "resolubiliter", and both concern the relation of a general term to a singular term or vice versa.

(2. 2) when a sentence has no "mediate" term by which it could be proved in one of the four Billingham modes, as is the case with singular sentences containing proper names or other singular terms such as demonstratives.

On the basis of these definitions and distinctions, Helmold produces seven *conclusiones* which together give a complete answer to this question.

Conspectus auctoritatum
Wyclif, *Tractatus* = Iohannes Wyclif, *Tractatus de logica*, ed. M. H. Dziewicki, vol. I, London, Trübner & Co., 1893.

Conspectus abbreviationum
a.c. = *ante correctionem* (before correction)
add. = *addit* (adds)
del. = *delet* (deletes)
om. = *omittit* (omits)
p.c. = *post correctionem* (after correction)
s. = *sed* (but)

Conspectus siglorum
(!) = *sic!*
(?) = *an sic? (vel etiam: sensus incertus)*
<…> = added by the editor HB
[…] = deleted by the editor HB
K = MS Cracow, BJ, 696, fols 124va–125rb
S = MS St. Florian, Stiftsbibliothek, Cod. XI 627, fols 154va–155rb

<Helmoldus de Zoltwedel>
<Quaestiones parvorum logicalium>
<Pars VII, Quaestiones Billingham>
<Quaestio 4>

| Utrum omnis propositio probabilis altero istorum quattuor modorum, scilicet resolubiliter, componibiliter, exponibiliter et officiabiliter, sit probabilis. K124va S154va

Quod quaestio sit vera, arguitur sic, quia quaelibet propositio probabilis habet terminum mediatum, ratione cuius ipsa poterit probari, sed quaelibet propositio habens terminum mediatum, ratione cuius poterit probari, altero istorum quattuor modorum est probabilis, igitur quaestio vera. Consequentia tenet, quia quaelibet propositio probabilis ratione termini mediati apta est probari resolubiliter, componibiliter, exponibiliter vel officiabiliter. Sed antecedens pro prima parte patet, quia quaelibet propositio probabilis est mediata, sed omnis propositio mediata videtur ratione sui termini mediati esse mediata. Sed pro secunda parte patet, quia omnis terminus mediatus aut est resolubilis aut componibilis aut exponibilis aut officiabilis.

In oppositum arguitur sic: Non quaelibet propositio probabilis habet terminum mediatum resolubilem, componibilem, exponibilem vel officiabilem, ergo non quaelibet propositio probabilis altero istorum quattuor modorum est probabilis. Consequentia tenet, quia omnis probatio secundum unum istorum modorum dictorum fieri non habet nisi ratione termini mediati, ut Wiligam vult met in textu. Sed antecedens probatur, quia aliqua est propositio singularis immediata, quae non habet terminum mediatum in ea positum, sicud magister Wiligam met innuit in textu, quia dicit, quod illa "Hoc est hoc" vel illa "Hoc est Sor" sit immediata non habens terminum mediatum in ea positum.

<Notabile primum>

Quantum ad materiam illius quaestionis primo est notandum, quod proprie loquendo tunc probare est veritatem alicuius propositionis ostendere, et sic nulla propositio impossibilis ut sic proprie poterit probari.

Sed improbare proprie loquendo est falsitatem alicuius propositionis ostendere, et secundum hoc nulla propositio necessaria ut sic proprie poterit improbari.

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31 Cf. Wyclif, *Tractatus*, I, p. 76, l. 5–6.

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8 sit] est *S* | arguitur] probatur *S* | **16** patet] probatur *K* | **19** sic] *om. S* | **28** sit] est *S*

<Notabile secundum>

Secundo notandum, quod tribus modis contingit ostendi aliquam propositionem esse veram.

Primo modo contingit hoc ostendi ex solo sensu cum consequentibus ipsum et notitia terminorum, quemadmodum contingit propositiones singulares contingenter veras, quarum significatio adaequata subiacet sensui quoad eius notitiam, ostendi esse veras, ut illa propositio "Hoc est hoc" | vel ista "Hoc est". S154vb

Secundo modo contingit ostendi aliquam propositionem esse veram ex solo intellectu cum consequentibus ipsum et notitia terminorum, quemadmodum contingit propositiones universales per se notas intellectui convinci esse veras, ut sunt tales propositiones "Omne ens est", "Nihil est et non est".

Tertio modo contingit aliquam propositionem ostendi esse veram ex sensu et intellectu cum consequentibus ipsos et notitia terminorum, ut propositio non singularis contingenter vera, ut est ista "Homo currit", "Homo dormit".

<Notabile tertium>

Tertio notandum, quod quadruplex est modus probandi propositiones.

Primus modus probandi est a priori, scilicet quando ad probandum propositionem assumitur causa sufficiens de per se | adaequatae significationis propositionis significati primarii adaequati propositionis, ex qua ipsa sequitur tamquam ex antecedente de per se ad alteram, et infertur propositio probanda, ut probando istam propositionem "Sor est risibilis" per istam causam "quia Sor est animal rationale mortale". K124vb

Secundus modus probandi propositionem est a posteriori, ut quando ad probandum aliquam propositionem assumitur effectus, qui infallibiliter consequitur significatum adaequatum primarium propositionis probandae, et ponitur propositio, cuius significatum primarium adaequatum importat effectum talem, pro antecedente et infertur propositio probanda, ut probando istam "Sol obumbrescit" per istam "Sol eclipsatur".

Tertius modus probandi propositionem est ab aequo, hoc est a convertibili, ut quando ad probandum propositionem sumuntur exponentes ad probative inferendum propositionem expositam.

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39 Cf. Wyclif, *Tractatus*, I, p. 79, l. 4–19. | **56** Cf. Wyclif, *Tractatus*, I, p. 79–80, l. 20–11.

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39 notandum] nota *K* | **42/43** propositiones] probationes (!) *K* | **44** veras] veram *S* | **45** ista] *om. S* | **46** ostendi] *om. S* | **47** ex] *om. KS* | et] cum *add. K* | **48/49** intellectui] intellectu *S* | **51** ostendi] *om. S* | **52** et²] cum *add. K* | **56** notandum] nota *K* | quadruplex] quarudem (!?) *S* | **59** primarii] *om. S* | propositionis] primarii *add. S* | **60** ipsa] ipsum *S* | tamquam] *p.c. K*, tantum *a.c. K* | alteram] alterum *S* | **61** propositionem] *om. K* | **62** causam] so- *add. s. del. S* | **67** importat] inhortat (!) *K* | **70** propositionem] propositiones S

Quartus modus probandi propositiones ex opposito vel oppositis est, ut quando ad probandum aliquam propositionem esse veram ostenditur suum contradictorium esse falsum et tamquam per inductionem concluditur propositionem probandam esse veram, eo quod duo contradictoria sibi invicem contradicentia non possunt simul et semel esse vera.

Et quaelibet propositio vera uno istorum quattuor modorum potest probari esse vera. Etiamsi debite isti quattuor modi inspiciantur, eo levius invenitur veritas vel falsitas propositionis, cuius veritas vel falsitas quaeritur, quia in certis materiis unus istorum quattuor modorum faciliori modo invenitur quam alter. Et sic aliquando contingit, quod una propositio apud unum facilius est probari secundum unum modum certum istorum quattuor quam apud unum alium quoad eundem modum probandi, et econverso alter modus uni est difficilior et alteri idem modus est facilior.

<Notabile quartum>

Quarto notandum, quod non omnis propositionis verae probatio habet fieri ratione termini mediati | resolubilis, componibilis, exponibilis vel officiabilis. Patet, quia aliquando propositio vera probatur a priori vel a posteriori vel ab aequo vel ex opposito, qui modi probandi aliquando non fiunt ratione termini mediati resolubilis, componiblis, exponibilis, officiabilis, quia probando istam propositionem "Sor est Sor" non potest adduci de directo aliquis istorum quattuor modorum probandi, scilicet resolubilis, componibilis, exponibilis vel officiabilis, cum eadem propositio bene probari poterit ratione unius modi probandi expressi in tertio notabili, qui nullus istorum modorum est, scilicet componibilis, exponibilis, etc. S155ra

<Notabile quintum>

Quinto nota, quod dupliciter contingit aliquam propositionem esse immediatam.

Primo modo, ut si aliqua propositio non haberet aliquod medium, per quod probari posset, et sic nulla propositio vera est immediata, quia quaelibet propositio vera potest ostendi esse vera altero istorum quattuor modorum expressorum in tertio notabili.

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77 Cf. Wyclif, *Tractatus*, I, p. 80, l. 12–34.

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78 Etiamsi] *sed videtur esse incongruum!* | inspiciantur] inspicuntur *S* | **79** vel[1]] et *S* | **86** notandum] nota *K* | **87/88** resolubilis … officiabilis] exponibilis, resolubilis, etc. *S* | **88** patet] probatur *S* | **90/91** exponibilis, officiabilis] etc. *S* | **91** propositionem] *om. K* | **92** modorum] modi *S* | **93** resolubilis] *om. S* | exponibilis vel officiabilis] etc. *S* | **95** componibilis] *om. S* | **98** dupliciter] duplici modo *K* | contingit] *om. S* | esse] *om. S* | **100** ut si] quod *K* | **102** potest] potens *K*

Secundo modo aliqua propositio dicitur immediata esse secundum quid, non sic simpliciter, scilicet quia nullum habet medium, sed quia credo, quod modo probandi aliquo generali non est apta probari.

Et hoc contingit dupliciter, uno modo propositio dicitur immediata secundum quid, quia non habet medium deducendi, quo demonstrative | probari posset. Isto modo Aristoteles in primo Posteriorum utitur isto K125ra termino "propositio immediata", quando dicit, quod propositio immediata est, qua non est altera prior, scilicet quoad probationem demonstrativam.

Secundo modo sumitur propositio immediata secundum quid, prout pertinet ad materiam propositam libri Wiligam, et sic propositio dicitur immediata ista, quae non habet terminum mediatum resolubilem, componibilem, exponibilem vel officiabilem, ratione cuius apta esset probari resolubiliter vel componibiliter etc. Isto modo haec propositio est immediata "Hoc est hoc" vel ista "Sor est hoc".

<Conclusio prima>

Istis sic stantibus sit prima conclusio illa: Omnis propositio vera est probabilis. Probatur, quia quaelibet propositio vera potest ostendi esse vera per aliquod medium probandi eam, igitur quaelibet propositio vera est probabilis. Consequentia tenet ex primo notabili, scilicet ex quid nominis illius termini "probare" vel "probabile". Sed antecedens patet ex tertio notabili.

<Conclusio secunda>

Conclusio secunda: Omnis propositio falsa est improbabilis. Probatur, quia quaelibet propositio falsa potest ostendi esse falsa per aliquod medium probandi eam esse falsam, igitur quaelibet falsa propositio est improbabilis. Consequentia tenet ex quid nominis illius termini "improbare" et "improbabile", quia improbabile in proposito est propositio, quae apta nata est ostendi esse falsa per aliquod medium probandi ipsam esse falsam, et non capitur hic "improbabile" quasi "non probabile". Antecedens probatur, quia sicud quaelibet propositio vera probari poterit, sic suo modo quaelibet propositio falsa improbari poterit altero istorum quattuor modorum in tertio notabili expressorum.

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105 quid] quod *S* | sic] sit *S* | **106** quod] *om. S* | **109/110** isto termino] li *K* | **110** propositio[1]] *om. K* | **113** modo] dicitur *add. K* | **115** ista] *om. S* | **116** exponibilem vel officiabilem] etc. *S* | **117** vel] *om. S* | **118** ista] *om. S* | **121** quia] *om. S* | **123/124** illius termini] quod est *K* | **124** probabile] *p.c. S*, improbare *K*, improbabile *a.c. S* | **127** aliquod] *om. S* | **129** termini] quod est *K* | improbare] *p.c. S*, probare *K a.c. S* | **130** improbabile] improbare *K* | improbabile] improbare *K* | **131** ipsam] eam *K* | **132** improbabile] improbare *K* | non probabile] non probare *K* | **135** expressorum] praemissorum *K*

<Conclusio tertia>

| Conclusio tertia: Capiendo propositionem immediatam primo modo S155rb
nulla propositio mundi quantumcumque vera vel quantumcumque falsa est propositio immediata. Probatur, quia omnis propositio mundi est
140 vera vel falsa, sed nulla propositio vera est sic immediata nec ulla propositio falsa est sic immediata, ut patet ex ambabus conclusionibus praecedentibus, igitur conclusio est vera. Consequentia tenet de se, similiter et antecedens.

<Conclusio quarta>

145 Conclusio quarta: Capiendo propositionem immediatam secundo modo, tunc aliqua propositio est mediata et aliqua propositio est immediata. Probatur, quia capiendo propositionem immediatam secundo modo, tunc reperiuntur aliquae propositiones demonstrabiles et aliquae propositiones indemonstrabiles, ut patet primo Posteriorum. Sed pro-
150 positiones demonstrabiles sic sunt mediatae et propositiones indemonstrabiles sic sunt immediatae. Igitur conclusio vera. Consequentia nota est, similiter et antecedens.

<Conclusio quinta>

Conclusio quinta: Capiendo propositionem immediatam tertio modo,
155 tunc aliqua propositio est mediata et aliqua immediata. Probatur, quia capiendo propositionem immediatam tertio modo, tunc reperitur aliqua propositio, quae non habet aliquem terminum mediatum, ratione cuius probari poterit resolubiliter vel componibiliter etc., sicud Wiligam met ponit in textu. Et etiam reperitur aliqua propositio, quae habet terminum
160 mediatum, ratione cuius propositio apta est probari resolubiliter etc., ut iterum patet per Wiligam in textu, igitur conclusio vera. Consequentia nota est, similiter et antecedens.

<Conclusio sexta>

Conclusio sexta: Non omnis propositio vera altero istorum quattuor
165 modorum, scilicet resolubiliter, componibiliter, exponibiliter et officiabiliter, est probabilis. Probatur, quia non quaelibet propositio vera habet terminum mediatum, ratione cuius altero istorum quattuor modorum poterit probari, sicud patet per probationem conclusionis praecedentis et ex quarto notabili praemisso, igitur conclusio vera. Consequentia nota
170 est, similiter et antecedens.

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140 ulla] aliqua *K* | propositio] *om. K* | **141** est … immediata] *scripsi*; est sic immediatas *S*, *om. K* | **142** est] *om. K* | **145** immediatam] quarto modo *add. s. del. S* | **146** propositio[2]] *om. K* | **150** et] sic *add. S* | **158** vel] *om. S* | **159** propositio] *om. K* | **160** resolubiliter] exponibiliter *S* | **161** igitur conclusio vera] *p.c. S, om. s. add. in fine conclusionis istius quintae a.c. S* | **162** similiter] igitur (!) *K* | **165/166** exponibiliter et officiabiliter] etc. *K* | **169** quarto] 20 (!) *KS* | **170** similiter] igitur (!) *K*

<Conclusio septima>

Conclusio septima: Non omnis propositio falsa potest improbari aliquo istorum quattuor modorum, scilicet resolubiliter, componibiliter, exponibiliter etc. Probatur, quia non quaelibet propositio falsa habet aliquem terminum mediatum, ratione cuius improbari poterit resolubiliter, componibiliter, exponibiliter etc., sicud patet de illa propositione "Hoc non est hoc" | demonstrata eadem re utrobique, ergo conclusio vera. K125rb

<Corollarium responsale>

Corollarium, quod sequitur, est istud, quod quaestio est falsa. Sed ad rationem, quando arguitur "quaelibet propositio probabilis habet terminum mediatum, ratione cuius probari poterit", negatur hoc. Sequitur <sc. qu. 5>.

173/174 exponibiliter] *om. S* | **176** exponibiliter] *om. S* | **179** est istud] *om. S* | **181** sequitur] *om. K*

OTA PAVLÍČEK & MIROSLAV HANKE

The *Argumenta sophistica* in the Debate between Jerome of Prague and Blasius Lupus

At Prague, as at other medieval universities, disputations were an essential part of learning, teaching and scholarly communication in the Faculty of Arts. Perhaps the most interesting debates were the quodlibets, which were usually attended by many masters of the liberal arts, including those who were already members of one of the three other faculties. The most extensive of these quodlibetal discussions apparently took place in 1409. In this year, the chosen *quodlibetarius*, Matthias of Knín (Matěj Knín in Czech, †1410), invited nearly 150 masters to the quodlibet, which makes it, at least in theory, one of the largest academic debates of the late Middle Ages[1]. Although Matthias presided over the event, Jerome of Prague (†1416) may be viewed as the second architect of the final part of the debate, since this leading figure of the Bohemian reception of John Wyclif's realist philosophy made the closing speech and thus appeared in Matthias's place. In this speech, the *Recommendatio artium liberalium*, Jerome caused indignation among some of the scholars present by defending the study of Wyclif's treatises and praising the presiding master, recently

* Work on this study received financial support from the Czech Science Foundation (GA ČR) project "Philosophy at the University of Prague around 1409: Matěj of Knín's *Quodlibet* as a Crossroads of European Medieval Knowledge", grant n. 19–16793S, carried out at the Institute of Philosophy of the Czech Academy of Sciences. We would like to express our thanks and gratitude to Dr. Mark Thakkar for his profound reading of a preliminary version of this study and for his highly useful comments and suggestions.

1 For the Prague quodlibetal debates, see J. Kejř, *Kvodlibetní disputace na pražské universitě* [Quodlibetal Disputations at the University of Prague], Praha, Universita Karlova, 1971; F. Šmahel, "Die Verschriftlichung der Quodlibet-Disputationen an der Prager Artistenfakultät bis 1420", in F. Šmahel, *Die Prager Universität im Mittelalter / The Charles University in the Middle Ages. Gesammelte Aufsätze / Selected Studies*, Leiden / Boston, Brill, 2007, p. 359–386; and O. Pavlíček, "Parisian and Prague *Quodlibeta* Compared: The Transfer of the Quodlibetal Disputation between the Faculties and Jerome of Prague's Struggle against the Thematic Limitations Imposed on the Faculty of Arts", in E. Jung (ed.), *What is New in the New Universities. Learning in Central Europe in the Late Middle Ages (1348–1500)*, Warszawa, Wydawnictwo IFiS PAN, 2018, p. 325–356, which mentions further literature on the topic.

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accused of heresy[2]. Jerome's solution to the question *Utrum a parte rei universalia sit necessarium ponere pro mundi sensibilis armonia*[3], assigned to him by Matthias in the central part of the disputation, also caused a severe reaction. Several months after the quodlibet at the latest, Blasius Lupus (Blažej Vlk in Czech, † c. 1410), a senior master of the university's Bohemian nation, made several attacks on realism based on Wyclif's philosophy in general, and in particular on Jerome's position that universals *a parte rei* are a necessary condition for the harmony of the perceptible world[4].

As we shall see, the debate between Blasius and Jerome is an example of a scholastic discussion that is partly extant as a *reportatio*, recorded during the disputation in a university auditorium. It is also an essential text for understanding Jerome of Prague's thought. Although he held lectures on Wyclif's *Proofs of Propositions*[5], and repeatedly addressed the philosophy of logic, we find in Jerome's works only one extended passage in which he deals with technical aspects of scholastic logic[6]. This passage, which is one of the main motivations for this study, includes three sophistical arguments (related to the genre of sophisms) that Blasius had submitted to Jerome, who solved them as a part of a university debate in the first half of 1409. In what follows, we provide contextual background for these three *Argumenta sophistica* by identifying the main roles of sophisms at the Prague Faculty of Arts before discussing the textual documentation of the debate between our two Bohemian protagonists. In the last part, we consider the content and the argumentative tactics of the *Argumenta sophistica*. We present a new critical edition of this part of the manuscript in the appendix[7].

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2 The *Recommendatio artium liberalium* is published among Jerome's other works in Hieronymus de Praga, *Quaestiones, Polemica, Epistulae*, eds. F. Šmahel, G. Silagi, Turnhout, Brepols, 2010, p. 201–222. For Jerome's life and work, see the introduction in Hieronymus de Praga, *Quaestiones, Polemica, Epistulae*, p. xi–cxxviii; for his performance at the quodlibet, see p. xxxviii–xli.

3 The *quaestio* is published in Hieronymus de Praga, *Quaestiones, Polemica, Epistulae*, p. 85–95.

4 Besides being an arts master, Blasius Lupus of Strážné played a non-negligible administrative role in the university, having an important career as a jurist and arbiter at the Faculty of Arts. He was an opponent of John Hus, whom he named *apostata perfidissimus*. See J. Tříška, Životopisný *slovník předhusitské pražské univerzity 1348–1409* [Biographical Lexicon of the Pre-Hussite Prague University 1348–1409], Praha, Univerzita Karlova, 1981, p. 53.

5 *Magnum oecumenicum Constantiense Concilium de universali ecclesiae reformatione, unione et fide*, tom. IV, ed. H. von der Hardt, Frankfurt / Leipzig, Christian Gensch, 1699, col. 751; cf. col. 655. Wyclif's treatise was long hidden under the misleading title "Logice continuatio". For a clarification, see M. Thakkar, "Wyclif's *Logica* and the *Logica Oxoniensis*", in L. Campi, S. Simonetta (eds.), *Before and After Wyclif*, Turnhout, Brepols, 2020, p. 1–31.

6 In one of his *quaestiones*, Jerome discusses philosophical logic, comparing a nominalist approach and a realist approach, i.e. a linguistic and an ontological understanding of the subject-matter of logic. See Hieronymus de Praga, *Quaestiones, Polemica, Epistulae*, p. 8–10, l. 107–186. Jerome's position is expressed in one of his conclusions, l. 180–181: "Vera loyca non in signis sed in rebus est fundata." Cf. Z. Kaluza, "La question de Jérôme de Prague disputée à Heidelberg", in Z. Kaluza, *Études doctrinales sur le XIVe siècle: théologie, logique, philosophie*, Paris, Vrin, 2013, p. 301–332, in particular p. 327–332.

7 Our study is partly based on our Czech article O. Pavlíček, M. Hanke, "*Argumenta sophistica*: Disputace Jeronýma Pražského a Blažeje Vlka v kontextu řešení sofismat na pražské univerzitě [*Argumenta*

1. Sophisms at the University of Prague

What is a sophism? One of the possible answers is that it is a deceptive sentence allowing conclusive argumentation for and against[8], perhaps with the third option of demonstrable doubt. What makes a sentence a sophism is, however, not merely its content, because true, false or absurd sentences are equally eligible as a starting point for a debate in this genre. The critical feature is its proving or disproving, as all the available responses seem legitimate at first sight, and it is a matter of logical analysis to decide which of the submitted proofs are genuine and which are merely apparent.

Although it might be an exaggeration to say that sophisms were as significant for medieval faculties of arts as biblical exegesis was for the faculties of theology, they played an important role both doctrinally and didactically. In terms of the former, sophisms were used for clarifying and either confirming or refuting various kinds of claims, as in the case of the *Argumenta sophistica*. In terms of the latter, sophisms represented a valuable way for young students of the liberal arts to gain experience in logic. Those students who were engaged in solving sophisms, i.e. determining their truth-value by analyzing their putative proofs and disproofs, were usually called "sophists"; this designation did not have any pejorative sense, although this negative meaning of the term appears in other contexts in medieval philosophical and other writings[9].

Sophisms accordingly played an important role in the curriculum of the Prague Faculty of Arts. The fourteenths century statutes of the faculty stated that sophisms were to be solved during ordinary disputations, which were to last until evening (*ad horam vesperorum*). During these regular meetings, the presiding master distributed up to three sophisms, each to be assigned to up to three "sophists" (corresponding to the three possible answers to be defended)[10]. Participation in ordinary

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sophistica: The Disputation of Jerome of Prague and Blasius Lupus in the Context of Solving Sophisms at the University of Prague]", in O. Pavlíček (ed.), *Jeroným Pražský. Středověký intelektuál, mučedník české reformace a hrdina národní tradice*, Praha, Filosofia, 2018, p. 58–80, which we have reworked in order to publish the new edition.

8 We borrow this formulation from a very popular late medieval Cambridge handbook *Libellus sophistarum ad usum Cantibrigien(sium)*, London, W. de Worde, 1510, sig. C vii r (*De sophismatibus*): "Sophisma est oratio deceptoria ad cuius utramque partem contingit evidenter arguere." For details of the relevant *sophismata* treatise as found in two fifteenth-century manuscripts, see L.M. de Rijk, "Logica Cantabrigiensis. A Fifteenth Century Cambridge Manual of Logic", in *Revue Internationale de Philosophie*, 29–113/3 (1975), p. 302–303, 307. One of the famous sentences is in William Heytesbury's collection of sophisms from which it follows that the reader is an ass ("tu es asinus"). See Guglielmus Hentisberus, *Sophismata asinina. Une introduction aux disputes logiques du Moyen Âge*, présentation, édition critique et analyse par Fabienne Pironet, Paris, Vrin, 1994.

9 On sophisms in a medieval context, see P. V. Spade, "Sophismata", in R. Pasnau, C. van Dyke (eds.), *The Cambridge History of Medieval Philosophy*, Cambridge, Cambridge University Press, 2010, p. 185–195; F. Pironet, J. Spruyt, "Sophismata", in E. N. Zalta (ed.), *Stanford Encyclopedia of Medieval Philosophy*, Winter 2019 Edition, accessible from: https://plato.stanford.edu/archives/win2019/entries/sophismata/; and M. Yrjönsuuri, E. Coppock, "Sophisms and Insolubles", in C. D. Novaes, S. Read (eds.), *The Cambridge Companion to Medieval Logic*, Cambridge, Cambridge University Press, 2016, p. 265–289.

10 See *Statuta et Acta rectorum Universitatis Carolinae Pragensis 1360–1614*, eds. F. Šmahel, G. Silagi, Praha, Univerzita Karlova – Nakladatelství Karolinum, 2018, p. 247: "conclusum fuit quod de cetero dis-

disputations was also mandatory for students who had passed their bachelor examinations but were still waiting to graduate. They were to respond to sophisms, as opposed to the graduated bachelors who were supposed to respond to *quaestiones*[11]. Such a differentiation implies that sophisms were destined mostly for students, and *quaestiones* for more advanced scholars. According to another statute, whoever disputed on topics from the field of natural philosophy was expected to dispute one or two sophisms before the traditional disputed *quaestiones*. During a single meeting, no master was allowed to dispute more than three *quaestiones* or two *quaestiones* with one or two sophisms[12].

Sophisms also played a role in the course of bachelor graduation ceremonies, during which every candidate was to respond to a sophism assigned to him by his master, who was not allowed to argue against the candidate's solution. The candidate would sit with the other students (rather than with the bachelors) wearing a cloak. After he had given his solution, the beadle would ask him to rise, put on a *habitus* and take a seat among the bachelors. The master would then submit a *quaestio* to him. Once he had settled the *quaestio*, the beadle would ask him to swear the statutory oaths. Next, the master would give a speech on the student's qualities and award him the bachelor's degree[13].

Last but not least, in 1387 the faculty adopted a regulation concerning disputations *in sophistria*. We may consider these disputations or, more precisely, practical exercises (*exercitia*), as training in the practice of sophistry, which was to take place for one hour each teaching day at a time that varied from quarter to quarter.

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putacio ordinaria continuari debeat usque ad horam vesperorum, et quod sophismata per presidentem non distribuantur plura quam tria, nec habere debet plures sophistas quam novem, ita quod ad quodlibet sophisma possint esse tres, unus concedendo, alter negando, tertius dubitando." A potential witness to the practice of finding three possible stances towards one sophism is present in MS Prague, KMK, N 12, fols 3v–5r. For the role of sophisms in the curriculum of the Prague Faculty of Arts in comparison with the University of Cracow, see M. Markowski, "Die Rolle der Sophismata im Unterricht der Krakauer Universität im 15. Jahrhundert", in S. Read (ed.), *Sophisms in Medieval Logic and Grammar*, Dordrecht, Springer, 1993, p. 116–127.

11 *Statuta et Acta rectorum Universitatis Carolinae Pragensis*, p. 241: "Item in plena congregacione facultatis statutum fuit quod scholaribus post examen huiusmodi admissis deberet iniungi quod toto tempore quo non processerint disputaciones magistrorum visitare teneantur, ad sophismata responsuri sic<ut> baccalarii ad questiones, et sub consimili pena per facultatem eis, si negligentes fuerint, indicenda."

12 *Statuta et Acta rectorum Universitatis Carolinae Pragensis*, p. 258: "conclusum erat in facultate quod quilibet disputans in philosophia naturali ad minus deberet unum sophisma, vel duo ad maius disputare, et pro isto tantum debet dari sicut de exercicio totaliter philosophicali, et debet sophisma vel sophismata ante questiones disputare. Item conclusum fuit quod nullus magistrorum uno actu plures quam tres questiones vel duas questiones cum uno vel duobus sophismatibus ad maius, ut prescriptum est, debeat disputare."

13 *Statuta et Acta rectorum Universitatis Carolinae Pragensis*, p. 241: "Quando baccalariandus vult procedere, magister suus debet sibi proponere unum sophisma, ad quod respondebit sedendo cum aliis scholaribus, et non inter baccalarios, et in mantello suo, nec magister contra responsionem replicabit. Ista responsione facta bidellus faciat eum surgere et habitum induere, et in loco baccalariorum sedere, et magister proponat sibi questionem, quam debet honeste determinare, quo facto bidellus faciat eum iurare tria ultima iuramenta supra scripta, et alia statuta et statuenda, et tunc magister faciat coll[oc]acionem de eo, et dabit sibi gradum baccalariatus."

These practice disputations took place between 6 January (Epiphany) and Easter, between Easter and 25 July (Feast of Saint James), and between 25 July and 16 October (Feast of Saint Gallus). They did not take place in the fourth quarter of the year for want of time[14]. Teachers prepared handbooks for these exercises, and at least one extant handbook is connected to the teaching of sophistry in Prague[15].

We also know several masters of the Prague Faculty of Arts who were known as "sophists". One of them, Master John of Mýto (†1405, Jan z Mýta in Czech, Johannes de Mutha in Latin), was an influential teacher of many eminent scholars of the university's Bohemian nation, including John Hus, Stephen of Páleč, Jakoubek of Stříbro and Jerome of Prague[16]. He was called "Sophista", an epithet he probably gained either through teaching sophistry, graduating many students to bachelors (to each of whom he assigned a sophism)[17] or thanks to his ingenuity when dealing with these logical puzzles. A recent discovery which supports this is his authorship of a commentary on Aristotle's *De sophisticis elenchis*[18]. Symptomatically, Mýto's speech for Hus's bachelor graduation starts with a sophism, "sanabatur laborans", borrowed from this work of Aristotle's[19]. Another significant scholar of the Prague Faculty of Arts in terms of sophisms was John of Holland, a probable disciple of Henry Totting of Oyta. This John, who was active earlier than Mýto, having become a master in

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14 *Statuta et Acta rectorum Universitatis Carolinae Pragensis*, p. 259 : "fuit concorditer conclusum et statutum quod ter in anno exercicia in sophistria teneantur, videlicet tribus anni quartalibus, sic quod per unum quartale quodlibet exercitium continuetur, primum ab Epiphania Domini usque ad festum pasche, omni die per unam horam, hora 19.; secundum a festo Pasche usque ad festum sancti Iacobi pro 2do quartali anni, et istud omni die hora 16. continuetur; tertium a festo sancti Iacobi usque ad festum sancti Galli omni die hora 17. continuetur; per quartum vero quartale anni nullus teneat exercicia in sophistria propter temporis illius quartalis brevitatem." Cf. F. Šmahel, "The Faculty of Liberal Arts 1348–1419", in Šmahel, *Die Prager Universität im Mittelalter*, p. 233–238, who notes that it was forbidden to teach between 25 July and 25 August and explains the regulatory differences between *exercitia* and *lectiones*.

15 *Logica modernorum in Prague about 1400. The Sophistria Disputation 'Quoniam quatuor', MS Cracow, Jagiellonian Library 686, ff. 1ra–79rb, with a Partial Reconstruction of Thomas of Cleve's Logica*, ed. E. P. Bos, Leiden / Boston, Brill, 2004.

16 Mýto's role may be traced in the records of the deans of the Prague Faculty of Arts, *Liber decanorum facultatis philosophicae Universitatis Pragensis ab anno Christi 1367 usque ad annum 1585*, pars I, eds. A. Dittrich, A. Spirk, Pragae, Typis Joan. Nep. Gerzabek, 1830. Such a tracing has been made for other graduating officers by Šmahel, "The Faculty of Liberal Arts 1348–1419", p. 255–257. For basic information on Mýto's life and work, see P. Spunar, *Repertorium auctorum Bohemorum provectum idearum post Universitatem Pragensem conditam illustrans*, tom. I, Wrocław, Ossolineum, 1985, p. 92–94.

17 For some of the relevant graduation speeches, see *Promoční promluvy mistrů artistické fakulty Mikuláše z Litomyšle a Jana z Mýta na Universitě Karlově z let 1386 a 1393* [Graduating Speeches of Mikuláš of Litomyšl and Jan of Mýto, Masters of the Faculty of Arts, at the Charles University from 1386 and 1393], ed. B. Ryba, Praha, Česká akademie věd a umění, 1948. For the epithet "Sophista", see, for example, Spunar, *Repertorium auctorum Bohemorum provectum idearum post Universitatem Pragensem conditam illustrans*, tom. I, p. 94, no. 209.

18 The commentary is extant in MS Leipzig, Universitätsbibliothek, Ms 1357, fols 206r–210v under the title *Sententia libri Sophisticorum Elenchorum Aristotelis*. It is registered by M. Markowski, *Repertorium commentariorum medii aevi in Aristotelem Latinorum qui in bibliotheca universitas lipsiensis asservantur*, Kraków, Polska Akademia Umiejętności, 2012, p. 52–53.

19 *Promoční promluvy mistrů artistické fakulty*, p. 43. Cf. *Soph. el.* 4, 165b38–166a6.

1369, composed several logical writings including a *Sophismata longa*, and is mentioned in a manuscript as "sophista subtilis"[20]. Nicholas of Stojčín, whom John Hus in his quodlibetal handbook in 1411 calls a sophist[21], was much younger.

2. The Structure and Texts of the Debate between Blasius Lupus and Jerome of Prague

Blasius Lupus's polemic against Jerome of Prague began at the latest with the Prague quodlibetal disputation at the beginning of January 1409. As we know from the Vienna judicial proceedings against Jerome and other extant texts[22], Blasius disagreed with the realist philosophical opinions that Jerome presented in the *Quaestio de universalibus a parte rei* at the *quodlibet,* and he wanted to debate them afterwards. In 1914, Jan Sedlák connected two fragmentary polemics against Jerome's writings with the ensuing debate, and he published them as Blasius Lupus's under the titles of their incipits: *Item secundo arguitur contra idem*, which is acephalous and atelous, and *Deinde procedam sic*. Furthermore, Sedlák also connected Jerome's pair of *quaestiones* on divine ideas and universals (known today as *Quaestio de formis universalibus* and *Quaestio de universalibus extra signa* or USFU and USEA[23]) with the same debate. However, he was not familiar with the disputation record discovered decades later by František Šmahel in MS Prague, KMK, N 12, which is without doubt connected with the exchange, as in it an anonymous author (presumably Blasius) argues extensively against Jerome's quodlibetal *quaestio*. This record, entitled *Contra universalia realia: Utrum universalia sint ponenda*, brings us a better understanding of the form and content of the whole debate, or at least of a significant part of it. It shows that Blasius's reaction had several phases, his target being Jerome's position as well as the realism about universals defended by the group of Prague scholars who favored Wyclif's position. Blasius initially prepared fourteen objections against the reality of universals, which he probably made public and distributed in Prague some time after the *quodlibet*. Jerome's reaction also took a written form. The opponents were not satisfied with this exchange, which led to

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20 For basic information on John of Holland's life and work, see J. Tříška, "Příspěvky k středověké literární univerzitě. Deu [*sic*] auctoribus et operibus universitatis Pragensis medii aevi capitula [Contributions to the Medieval Literary University]", in *Acta Universitatis Carolinae – Historia Universitatis Carolinae Pragensis*, 9–1 (1968), p. 13–14 and Iohannes de Hollandia, *Four tracts on logic (Suppositiones, Fallacie, Obligationes, Insolubilia)*, ed. E. P. Bos, Nijmegen, Ingenium Publishers, 1985, p. *13*–*33*. According to Tříška, the mention is found in MS Cracow, BJ, 2045, fol. 191r.

21 See Iohannes Hus, *Quodlibet*, ed. B. Ryba, Turnhout, Brepols, 2006², p. 229–230.

22 *Processus iudiciarius contra Jeronimum de Praga habitus Viennae a. 1410–1412*, ed. L. Klicman, Praha, *Česká akademie císaře Františka Josefa pro vědy, slovesnost a umění*, 1898. Exact references including the other texts are provided in the following notes.

23 These acronyms, used mostly by older scholarship, are based on the first four words of the title of a *quaestio*. Thus, *Utrum sint [alique] forme universales que neque formate sunt nec eciam formabiles* becomes USFU and so on. While these abbreviations are useful among specialists, they are rather opaque to non-specialists, which is why we use more understandable titles. For that matter, the title USFU is based on Sedlák's edition of this *quaestio* (see the next note) which omits the word "alique" found in MS Prague, NK ČR, X E 24, fol. 178r; a more accurate acronym would thus be "USAF".

a further debate before other members of the university at some point in March or April of the same year, during which Blasius presented a long series of objections. As we might expect from such a lively exchange, Jerome responded to each objection in turn, immediately after hearing one or a short series of them. According to the record found by Šmahel, the debate had the following structure (Table I)[24]:

Table I: Structure of the Debate in MS Prague, KMK, N 12, fols 37r–45v

Part I	**Blasius Lupus's objections**
I.1	Blasius's fourteen objections to the reality of universals (*Contra opinionem propriam argumenta*) Jerome of Prague, *Quaestiones, Polemica, Epistulae*, p. 103–110, l. 1–239
Part II	**Jerome of Prague's arguments against Blasius's objections**
II.1	Jerome's fourteen replies to Blasius's objections (*Soluciones argumentorum*) Jerome of Prague, *Quaestiones, Polemica, Epistulae*, p. 111–116, l. 1–208
Part III	**Discussion of Jerome's quodlibetal *quaestio***
III.1	Blasius's eighteen objections to realism in general, framed as arguments against the title of Jerome's *quaestio,* together with Jerome's eighteen replies (*Contra titulum questionis*) Jerome of Prague, *Quaestiones, Polemica, Epistulae*, p. 117–128, l. 1–318
III.2	Three sophistical arguments, together with Jerome's answers (*Argumenta sophistica*) Jerome of Prague, *Quaestiones, Polemica, Epistulae*, p. 128–129, l. 1–48
III.3	Blasius's nineteen arguments against the content of Jerome's *quaestio* in particular, together with Jerome's replies (*Contra articulos, contra correlaria*) Jerome of Prague, *Quaestiones, Polemica, Epistulae*, p. 130–137

24 For historical and doctrinal sources relevant to the debate as well as Šmahel's reconstruction of the dialectic, see F. Šmahel, "Jerome of Prague: University Questiones and Polemics", in Šmahel, *Die Prager Universität im Mittelalter*, p. 544–564, which presents his discovery of the written record and uses it to question Sedlák's account; cf. J. Sedlák, "Filosofické spory pražské v době Husově [Philosophical Disputes at Prague in the Time of Jan Hus]", in J. Sedlák, *Studie a texty k náboženským dějinám českým* 2, Olomouc, Nakl. Matice Cyrilometodějské, 1915, p. 197–262. This study includes editions of Jerome's *quaestiones* related, according to Sedlák, to the polemic, as well as the two polemical fragments. Although there is no doubt that they argue against Jerome's positions, it is unclear which particular writings they are responding to. Jerome's pair of *quaestiones* and his quodlibetal *quaestio*, as well as the record found by Šmahel on which we base Table I, are newly published in Hieronymus de Praga, *Quaestiones, Polemica, Epistulae*, p. 15–51, 85–95 and 265–282.

2.1 Reassembling the Discussion: A Lost Version of Jerome's *Quaestio*

On the basis of the newly-discovered record and a re-examination of the polemical fragments first published by Sedlák, as well as Jerome's quodlibetal *quaestio*, Šmahel concluded that these polemics do not come from the 1409 debate with Blasius. In Šmahel's view, the polemic *Deinde procedam sic*, compiled with one small exception from Buridan's treatise *De differentia universalis ad individuum*[25], is aimed at an unknown *quaestio* of Jerome's. The case of the second polemic, *Item secundo arguitur contra idem*, is more complicated. While it argues against doctrinal points present in Jerome's quodlibetal *quaestio* (Figure I), it also attacks points not found in the *quaestio* in the numbered articles, notabilia, conclusions and corollaries precisely referred to in the polemic. Thus, Šmahel suggested that the two polemics are linked to the arduous process of getting Jerome's Parisian master's degree recognized at the University of Prague. On this view, the polemic *Item secundo arguitur contra idem*, in which the author apparently refers to two "acts" of a debate[26], would have been a reaction either to a now lost pair of *quaestiones* by Jerome or to a standard *quaestio* which preceded in the recognition process another pair of *quaestiones* now extant and known as *Quaestio de formis universalibus* and *Quaestio de universalibus extra signa*. Indeed, the latter two *quaestiones* may be connected with the recognition of Jerome's degree, as one of the prescribed obligations for being accepted among the masters of the Prague Faculty of Arts was, unusually, to dispute two pairs of *quaestiones*. In consequence, Šmahel dated the two polemics to 1406/1407, since Jerome became a Prague master of liberal arts at the beginning of 1407[27].

However, a more thorough analysis of all the texts mentioned above suggests an alternative and perhaps more suitable theory of their mutual relationship. The key to a better understanding of possible intertextual relations is the final passage of the record in MS Prague, KMK, N 12 (see our part III.3 in Table I above), in which Blasius undoubtedly argues against individual points of Jerome's quodlibetal *quaestio* stemming from the 1409 *quodlibet*. While the majority of points mentioned by Blasius in the record can be identified in the extant quodlibetal *quaestio*, that is not the case with the statement that "proposicio in qua predicatur signum de signo est falsa" which, according to Blasius, Jerome maintained in his position. Closer inspection reveals that the statement was a *corollarium*, as according to the record,

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25 *Johannis Buridani Tractatus de differentia universalis ad individuum*, ed. S. Syzller, in *Przegląd Tomistyczny*, 3 (1987), p. 137–178. We set aside in this paper the question of the relationship of the polemic *Deinde procedam sic* to the debate between Blasius and Jerome. However, it is not impossible that it is also connected with the 1409 disputations. In this context, it is noteworthy that its author says (Anonymus, *Deinde procedam sic*, in Hieronymus de Praga, *Quaestiones, Polemica, Epistulae*, p. 282, l. 223–224) "[…] ex illo non sequitur quod ergo universalia sint ponenda realia", which might be conceived as a reply to the introductory question of the whole debate in MS Prague, KMK, N 12 (*Contra universalia realia: Utrum universalia sint ponenda*).

26 Anonymus, *Item secundo arguitur contra idem*, in Hieronymus de Praga, *Quaestiones, Polemica, Epistulae*, p. 269, l. 82–83: "Postea in actu suo secundo posuit [*sc.* Hieronymus] aliquas conclusiones cum correlariis suis [*coni.*; sentencia *ed.*; suam *ms.*] fortificando suam posicionem."

27 Cf. Šmahel, "Jerome of Prague: University Questiones and Polemics", p. 544–564.

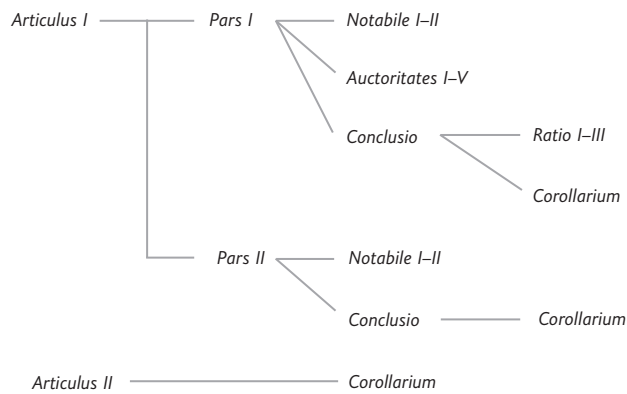

Figure I: The Structure of Jerome's Extant Quodlibetal *Quaestio*

Jerome replied to Blasius: "patet quod in correlario fit talis per signum universale distributivum limitacio[28]." Moreover, it is convenient for our analysis that Jerome had the record in his hands after the disputation, and besides longer passages which his scribe had not written down, he added remarks and notes on some parts of the debate. To the passage attacking the statement on mutual predication of signs, Jerome added: "non bene assumit, quia correlarium meum fuit 'omnis predicacio signorum ad invicem est falsa'[29]." Since Jerome made this remark himself, this both gives us the precise formulation of his statement as contained in the *quaestio* targeted by Blasius and confirms that we are dealing with a *corollarium*. Since the record in MS Prague, KMK, N 12 ends shortly after the discussion of this *corollarium*, and given that the record treats the parts of the *quaestio* in turn, there can be little doubt that the *corollarium* was located in the final part of Jerome's position[30].

There are several possible explanations of why Blasius responded to a passage which is not present in Jerome's extant *quaestio*. No matter what the explanation, it is clear that Blasius was reacting to a different version of Jerome's position compared to the extant text of the quodlibetal *quaestio*. This different version could have been the outcome of Jerome's reassembling his position in preparation for one round of the debate with Blasius, in keeping with one of the depositions from his trial in Vienna in

28 MS Prague, KMK, N 12, f. 44r. The edition in Hieronymus de Praga, *Quaestiones, Polemica, Epistulae*, p. 137, l. 63–64 reads: "Et patet, quod in <.....> sit talis per signum universale distributum limitacio etc."

29 MS Prague, KMK, N 12, f. 44r. The edition, p. 137, note to l. 49, reads: "Non bene asseruit, quia correlarium meum fuit; exposicio signorum ad invicem est falsum."

30 Hieronymus de Praga, *Quaestiones, Polemica, Epistulae*, p. 137, l. 64–65: "Et hec sunt recitata (retractata *ed.*), que fuerunt ab eodem diligenter reportata." Unfortunately, not all the additions by Jerome are identified in the critical apparatus of the edition, which makes it harder to understand the content of the debate on several occasions. Ota Pavlíček's research has shown that at least the following additional passages were added by Jerome to the manuscript: Hieronymus de Praga, *Quaestiones, Polemica, Epistulae*, p. 119, l. 77–81; p. 120, l. 102–111; p. 122, l. 155–157; p. 129, l. 28–33; p. 129, 39–40 (in part); p. 129, l. 45–46 (in part); p. 131, l. 51–54; p. 133, l. 9–18, 21–22; p. 137, l. 59–65.

1410[31]. Alternatively, given the unusual structure of the extant version of the *quaestio* (Figure I), whose second article does not include any conclusions but has an independent *corollarium*, it is also conceivable that Jerome presented a preliminary version of his position at the *quodlibet*, to which the extant wording could correspond; before making his *quaestio* available for dissemination shortly after the annual disputation, he could have decided to revise the *quaestio*[32]; and as part of that, he could have slightly changed both the content and the structure of the *quaestio* to incorporate the "lost" *corollarium*, this version later serving as the basis for Blasius's known response[33].

Either way, Šmahel has argued that it would be premature to assume a direct or immediate connection between the polemic *Igitur secundo arguitur contra idem* and the quodlibetal *quaestio* and, as mentioned above, he has linked it to Jerome's degree recognition process in 1406/1407[34]. His reasoning was led by two presuppositions. According to one of them, this polemic argues against a corollary "omnis predicacio signorum ad invicem est falsa" that is not present in Jerome's extant *quaestio*[35]. However, as we have just seen, this *corollarium* must have been present in Jerome's *quaestio*, as it was targeted by Blasius and even confirmed by Jerome. According to Šmahel's other presupposition, the polemic targets two *notabilia* of the second article, whereas the corresponding *notabilia* in the extant *quaestio* are found in the second part of its *first* article[36]. However, since there is no doubt that the extant version of the *quaestio* was not the one subjected to Blasius's criticism in MS Prague, KMK, N 12, the structural discrepancy does not oblige us to disconnect the polemic *Item secundo arguitur contra idem* from the 1409 debate. At the same time, the structure of the *quaestio* looks suspicious all by itself, as it includes only one *corollarium* with no antecedent conclusion (see Figure I). These facts, together with textual parallels that we deal with below, indicate that the two parts of the *quaestio*'s first article (as we think of them today) were probably presented by Jerome in the debate as two different articles. The second of these articles will have included the two *notabilia* and also the now "lost" *corollarium* on the mutual predication of signs.

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31 *Processus iudiciarius contra Jeronimum de Praga habitus Viennae a. 1410–1412*, p. 20: " Interrogatus, utrum tunc interfuerit, dicit quod non; sed ex post magister Jeronimus voluit replicare contra magistrum Lupum, et sic reassumpserit secundario eandem posicionem, et illi actui interfuerit […]."

32 We know thanks to Johannes de Vohburg's deposition that Jerome's *quaestio* was made public and copied in Prague before the clash with Blasius. See *Processus iudiciarius contra Jeronimum de Praga habitus Viennae*, p. 20: "Interrogatus unde sciat quod illa posicio fuerit facta per magistrum Jeronimum, dicit ex eo quia unus concesserit sibi illam posicionem et idem rescripserit Prage, et ille dicat quod sit posicio magistri Jeronimi; imo utique credat hoc quia titulus posicionis sit utrum ad mundi sensibilis armaniam necessarium sit ponere universalia realia, et ille Jeronimus illum titulum posuerit in disputacione quodlibeti, cum magister Knyn arguebat contra." It is also possible that the extant text is a preliminary sketch to be finished for a presentation at the quodlibet.

33 This hypothesis is further supported by the colophon of Jerome's quodlibetal *quaestio*, which suggests that the available wording originated as a *reportatio* taken down during the annual debate. See Hieronymus de Praga, *Quaestiones, Polemica, Epistulae*, p. 95, l. 334–336: "Expliciunt dicta reverendi Magistri Jeronimi de Praga anno Domini M° CCCC° IX° in Quolibet reverendi Magistri Mathye de Knyn enunciata […]."

34 Šmahel, "Jerome of Prague: University Questiones and Polemics", p. 561–562.

35 Šmahel, "Jerome of Prague: University Questiones and Polemics", p. 559.

36 Šmahel, "Jerome of Prague: University Questiones and Polemics", p. 559.

Finally, what confirmed to Šmahel that the polemic *Item secundo arguitur contra idem* was not directly related to the discussion tournament of 1409 was that he discovered "the actual polemic of Master Lupus" in MS Prague, KMK, N 12[37]. However, while this record made by Jerome and his student contains the major part of the debate, it does not preclude the existence of another written record prepared by Blasius's side of the debate. Indeed, an inquiry into the content of the extant fragment of the polemic *Item secundo arguitur contra idem* reveals substantial correspondences with the record in MS Prague, KMK, N 12, specifically with the final passage which argues against precise points of the quodlibetal *quaestio* as reconstructed above. There are virtually identical arguments targeting the same points and using similar words and sentence constructions. Although the extent of the texts is different, and the record made by Jerome's party does not register an argument against his position on the sufficiency of Aristotle's categories[38], it is clear that both polemics are, at the very least, aimed at an almost identical *quaestio* of Jerome's:

Blasius Lupus (KMK, N 12) *Contra magistrum Hieronymum de Praga*	Anonymus (NK ČR, VIII E 5) *Item secundo arguitur contra idem*
Contra hoc: ens analogum est ens, et non econtra, ergo non est communissimum. Assumptum probatur, quia ens univocum non est ens analogum; et consequencia est bona, quia ab inferiori ad superius[39].	Item de ente analogo dicit: "Primum creatum communissimum omnium aliorum contentivum" etc. **Contra: aliquid est prius, igitur etc. Sequitur: ens analogum est, igitur ens est; sed non econtra, quia stat esse ens et non ens analogum, puta ens univocum**; igitur etc[41].
Et quia concedunt quod Deus est ens analogum, quod est lapis,	**Item dicunt quod Deus est idem ens analogum quod est asinus,** igitur Deus est ens analogum et illud est asinus, et sic Deus est asinus et per consequens irracionalis; et sequitur, est irracionalis, igitur non racionalis, igitur Deus non est racionalis.
sit ens analogum A et lapis B, tunc arguitur sic: demonstrato A, hoc incepit esse, et hoc est Deus, ergo Deus incepit esse. **Item sequitur quod Deus desineret esse**[40].	Item **sit ens analogum A et asinus B. Arguitur sic: hoc incepit esse, demonstrato A et B, et hoc est Deus, igitur Deus incepit esse. Et similiter arguitur: hoc desinet esse, demonstrato A et B, et hoc est Deus, igitur Deus desinet esse**[42].

37 Šmahel, "Jerome of Prague: University Questiones and Polemics", p. 560.

38 This argument is present both in the extant *quaestio* and the polemic *Item secundo arguitur contra idem*. As noted elsewhere, Jerome's position depends on Robert Alyngton's treatise *Litteralis sententia super Praedicamenta Aristotelis*. See O. Pavlíček, "Two Philosophical Texts of Jerome of Prague and his Alleged Designation of Opponents of Real Universals as Diabolical Heretics", in Z. V. David, D. R. Holeton (eds.), *The Bohemian Reformation and Religious Practice* 8, Praha, Filosofia / Filosofický časopis, 2011, p. 70–73.

39 Blasius Lupus in Hieronymus de Praga, *Disputatio magistri Blasii Lupi contra magistrum Hieronymum de Praga*, p. 135, l. 2–5. In all of these juxtapositions, we have silently corrected the edition against the manuscripts and repunctuated the text for sense. The most important corrections are to the text in the second comparison, left column, beginning "Item arguitur sic": instans] Sor *ed.* | Tunc] Tantum *ed.* | instanti] Sorti *ed.* | tunc] tantum *ed.* | instanti] Sorti *ed.* | Tunc] Tantum *ed.* | instanti] Sorti *ed.* | efficiens] efficientem *ed.* | instanti] Sorti *ed.*

Blasius Lupus *Contra magistrum Hieronymum de Praga*	Anonymus *Item secundo arguitur contra idem*
Item arguitur sic: volo quod illud instans in quo ens analogum est productum vocetur B. Tunc quero utrum pro illo instanti prioritatis, puta B, fuit ens analogum ante omnem quidditatem vel non. Si fuit, tunc arguitur sic: **Ergo fuit creatura et per consequens effectus pro eodem instanti. Tunc sic: in illo instanti fuit effectum esse efficiens**, **sed omnia illa sunt in genere et quidditas; ergo in eodem instanti in quo fuit ens analogum, fuit quidditas, cuius oppositum dicit notabile**[43].	Si decem generalissima dependent ab ente analogo, ergo in aliquo genere cause dependent ab ente analogo. Consequencia tenet, quia quidquid ab aliquo vel altero dependet, hoc ab eo tamquam a sua causa dependet, ut notum est ex terminis. Sed novem generalissima non dependent in aliquo genere cause ab ente analogo, non in genere cause efficientis neque in alio genere cause, **quia alias ens analogum, secundum quod esset prius omnibus quiditatibus encium, esset quid et quiditas, quod manifeste claudit contradiccionem et <est> contra notabile primum** sui articuli secundi, et per consequens **notabile suum secundum** est falsum[44].

The similarity of the content could be explained relatively easily by the common medieval practice of reusing an argument across many writings[45]. It would be substantially more difficult, however, to explain why two different polemics misrepresent Jerome's position (as we have seen him claiming) in the same way, despite being written by two different authors in response to two different texts:

Blasius Lupus *Contra magistrum Hieronymum de Praga*	Anonymus *Item secundo arguitur contra idem*
Dicit quod proposicio in qua predicatur signum de signo est falsa. **Contra hoc sic: et suppono aliqua esse contradictoria proposicionalia facta in signis**. **Patet supposicio ex I° Peryermenias** et **I° Posteriorum**.	Item magister **infra suam determinacionem dixit quod omnis proposicio in qua predicatur signum de signo est falsa**. **Contra quod dictum arguitur supponendo quod contradictoria proposicionalia facta in signis** sibi invicem contradicentibus, in sensibus in quibus contradicunt, neque sunt simul vera neque simul falsa pro eodem adequato instanti duracionis. Ista **supposicio patet I° Peryermenias**, **I° Posteriorum** et fundatur in primo principio Methaphisice, quod dicit: "De quolibet dicitur esse vel non esse, de nullo simul."

40 Anonymus, *Item secundo arguitur contra idem*, in Hieronymus de Praga, *Quaestiones, Polemica, Epistulae*, p. 267, l. 19–23.

41 Blasius Lupus in Hieronymus de Praga, *Disputatio magistri Blasii Lupi contra magistrum Hieronymum de Praga*, p. 136, l. 16–19.

42 Anonymus, *Item secundo arguitur contra idem*, p. 267, l. 32–39.

43 Blasius Lupus in Hieronymus de Praga, *Disputatio magistri Blasii Lupi contra magistrum Hieronymum de Praga*, p. 136, l. 32 – p. 137, l. 39.

44 Anonymus, *Item secundo arguitur contra idem*, p. 267, l. 7–18.

45 For the particular case of Jerome of Prague, see Šmahel, "Jerome of Prague: University Questiones and Polemics", p. 571–578.

Tunc **propono istam proposicionem: signum est signum, et arguo sic: omnis proposicio in qua predicatur signum de signo est falsa,** ista est huiusmodi, igitur etc. Item **capio** istam: **nullum signum est signum.**	Ista supposicione stante **capiatur illa proposicio**: **"Signum est signum"**, detur eius contradictorium proposicionale in sensu quo ei contradicit, puta illud: "**Nullum signum est signum"** vel "Non signum est signum"; et quia ista proposicio "signum est signum" est proposicio in qua predicatur signum de signo, cum ergo secundum magistrum omnis proposicio **in qua predicatur signum de signo, est falsa, tunc oportet eum dicere quod hec proposicio "signum est signum" est falsa; et quia in eius contradictorio eciam predicatur signum de signo, oportet eum eciam dicere quod sua contradictoria, in sensu quo sibi contradicit, est falsa, ex quo dicit quod omnis proposicio in qua predicatur signum de signo est falsa. Et sic oportet eum dicere quod proposiciones contradictorie, in sensibus in quibus sunt** <contradictorie, sunt> **simul pro eodem instanti duracionis adequato falsa, quod est contra supposicionem premissam**, que vera est, cum fundatur in veritate illius primi principii: "De quolibet ente dicitur esse vel non esse et de nullo simul"[47].
Iterum suo modo arguitur quod sit falsa, et sic duo contradictoria sunt simul falsa, quod est falsum, igitur etc[46].	

To summarize, we may say that although other possibilities cannot be entirely ruled out, both texts seem to have had the same author, i.e. Blasius Lupus. They both argue against the same now lost version of Jerome's quodlibetal *quaestio,* and consequently they are both connected to the 1409 debate. It is clear that Jerome's *quaestio* existed in several versions. As suggested above, this may be because he prepared a preliminary version for the *quodlibet* or while drafting his quodlibetal position, and then (perhaps after the *quodlibet*) composed a more elaborated version for dissemination. By these means, the *quaestio* could have reached Blasius in its revised form. We know that Jerome presented his solution to the *quaestio* ("reassumpserit secundario eandem posicionem") before the debate, and it is thus likely that Blasius already knew this version of Jerome's position before the disputation in the auditorium, as he probably based his preparation of the polemic on this *quaestio*. The known fragment of *Item secundo arguitur contra idem*, however, originated only after the whole polemical cycle between the two masters, as the past tense of its narrative attests. Given the evident correspondences with the text extant in MS Prague, KMK, N 12, it is likely that, in preparing the polemic *Item secundo arguitur contra idem*, Blasius used a text that he had already drafted for the debate in the auditorium, today attested by MS Prague, KMK, N 12. The extant fragment of *Item secundo arguitur contra idem* cannot be this draft, as right after arguing against the "lost" *corollarium*, the fragment contains the words "Postea in actu secundo posuit […]". This expression most probably signifies that, after the round of the polemic record-

46 Blasius Lupus in Hieronymus de Praga, *Disputatio magistri Blasii Lupi contra magistrum Hieronymum de Praga*, p. 137, l. 48–57.

47 Anonymus, *Item secundo arguitur contra idem*, p. 268, l. 54 – p. 269, l. 81.

ed in MS Prague, KMK, N 12, there followed another round that we are even less informed about, as the extant fragment of *Item secundo arguitur contra idem* contains neither the beginning nor the end of the text. This possibility is further supported by a Vienna deposition according to which the Archbishop of Prague successfully requested the end of the disputation under the threat of excommunication[48]. Since there is no sign of such circumstances in the first part of the polemic *Item secundo arguitur contra idem* or in the record in MS Prague, KMK, N 12, the archbishop's intervention might have been aimed at the second act of a lively polemic, of which we know (according to the present theory) only a fragment, i.e. the second part of the polemic *Item secundo arguitur contra idem*[49].

Our compromise solution between Sedlák's and Šmahel's theories confirms, as a sort of a case study, that ostensibly the same medieval text might have been available in different versions in the Middle Ages. This complicates the already complex puzzle of the relationships between Jerome's texts and the polemics against him. Nevertheless, the existing record of the polemic is, in the context of the Prague Faculty of Arts, a very rare witness to what actually happened in the university auditorium, perhaps only comparable with the records of debates on quodlibetal *quaestiones principales*[50]. It also provides important evidence of how a master's quodlibetal position could provoke an extensive debate which continued long after the end of the disputation itself.

3. Three Sophistical Arguments

The *Argumenta sophistica* are contained in the third and final part of the recorded disputation between Blasius and Jerome. Their content involves some crucial aspects of Jerome's metaphysics, and his solution to the three "sophistical arguments" deploys both his logico-semantic and his ontological views, of which we will now present an overview.

Jerome acknowledges five fundamental kinds of objects and two fundamental relations. The fundamental kinds of objects comprise God, uncreated abstract properties ("divine ideas"), created properties ("universals"), created and uncreated propositions or "truths" (*veritates*), and particulars[51]; with the exception of God,

48 *Processus iudiciarius contra Jeronimum de Praga habitus Viennae a. 1410–1412*, p. 26: "et cum processit [*sc.* Hieronymus] ad declaracionem posicionis, tunc venerit sibi mandatum per familiarem archiepiscopi in scriptis, ut deberet cessare et non continuare actum inceptum; et sic cessaverit, quia omnes deutonici studentes tunc presentes, verentes mandatum archiepiscopi et penam excommunicacionis, ipsis et cuilibet attendenti comminatam […]."

49 Anonymus, *Item secundo arguitur contra idem*, p. 269, l. 82 – p. 271, l. 170. It is also possible that the Vienna deposition on the archbishop's order to cease the disputation relates to a different debate than the one with Blasius, as mentioned by Kejř, *Kvodlibetní disputace na pražské univerzitě*, p. 86–87.

50 There is only one other known record of such a debate at the Faculty of Arts. See F. Šmahel, "Kvodlibetní diskuse ke kvestii principalis Michala z Malenic roku 1412 [Quodlibetal Discussion of Michael of Malenice's Principal *Quaestio* from 1412]", in F. Šmahel, *Alma mater Pragensis. Studie k počátkům Univerzity Karlovy* [Studies on the Beginnings of the University of Prague], Praha, Karolinum, 2016, p. 349–371.

51 See, for instance, Hieronymus de Praga, *Quaestio de veritatibus generalibus*, in *Quaestiones, Polemica, Epistulae*, p. 3–12, *Quaestio de mundo archetypo*, in *Quaestiones, Polemica, Epistulae*, p. 161–188 and

these were also introduced in *Argumenta sophistica*. These constitute two separate "worlds", namely the uncreated *mundus archetypus* (God, ideas, and uncreated propositions) and the created *mundus sensibilis* (created particulars, universals, and propositions)[52].

The fundamental relations comprise "essential" identity (on one occasion related to "material" identity)[53] and "formal" identity, each of these yielding a corresponding form of difference. While Jerome uses these terms on multiple occasions, he never explicitly defines either of them, and the underlying theory must be reconstructed from the way he uses this terminology[54]. Jerome's ontology can be reconstructed by determining the forms of relations which hold between the fundamental kinds of objects. The most interesting combination of these relations is that of real essential identity and formal distinction, which in the ontologies of scholars influenced by Wyclif covers the relations between universals and propositions[55], between metaphysical grades in the Porphyrian tree (including the relation between universals and particulars)[56], and between God and uncreated ideas and propositions[57]. To take the relation between universals and singulars as an example, Jerome claims that the human species (or human in general) is essentially identical to every particular human being, as being a human or a rational mortal animal is what constitutes the essence of all human beings. However, the human species and a particular human being have incompatible properties, because one of them is "communicable" or shareable by more than one being, whereas the other is not[58]. In the same context, Jerome states that a particular being and the corresponding uni-

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Quaestio duplex de formis universalibus et de universalibus extra signa, in *Quaestiones, Polemica, Epistulae*, p. 13–69.

52 Hieronymus de Praga, *Quaestio de veritatibus generalibus*, in *Quaestiones, Polemica, Epistulae*, p. 7, l. 63–66: "[…] per illud Platonicum: Deum causando istum mundum sensibilem, que prima veritas creata est, erat venerabilis exempli, id est mundi architipi preclaram normam secutus."

53 See Hieronymus de Praga, *Disputatio magistri Blasii Lupi contra magistrum Hieronymum de Praga*, p. 136, l. 25: "essentialiter sive materialiter".

54 Incidentally, the same is true about, for instance, the theory of distinction introduced in Wyclif's *De universalibus*, where the core terminology is introduced by means of giving examples for each type of difference. See Iohannes Wyclif, *Tractatus de universalibus*, ed. I. J. Mueller, Oxford, Clarendon Press, 1985, p. 87–93.

55 See R. Gaskin, "*Complexe Significabilia* and the Formal Distinction", in A. Maierù, L. Valente (eds.), *Medieval Theories on Assertive and Non-Assertive Language. Acts of the 14th European Symposium on Medieval Logic and Semantics, Rome, June 11–15, 2002*, Firenze, Olschki, 2004, p. 495–516, in particular p. 499 n. 10.

56 See Hieronymus de Praga, *Quaestio de veritatibus generalibus*, p. 8, l. 89–106.

57 See Hieronymus de Praga, *Quaestio de formis universalibus*, in Hieronymus de Praga, *Quaestiones, Polemica, Epistulae*, p. 32–33.

58 Hieronymus de Praga, *Quaestio de veritatibus generalibus*, p. 8, l. 97–106: "Corrolarium secundum: Quamvis universale sit suum singulare essencialiter, differt tamen ab eo formaliter. Probatur, nam species humana, sive homo in communi, quod idem est, est essencialiter animal racionale mortale, et hoc idem est quilibet homo singularis, igitur prima pars corrolarii vera. Et secunda pars, scilicet quod differt ab eo formaliter, patet, nam homo communis est quidditates omnium hominum singularium, sine qua nemo singularis potest esse homo, eciam homo in specie est communicabilis in multis, singularis vero nequaquam, ergo corrolarium verum."

versal are mutually inseparable (i.e., cannot exist without each other)[59] as a consequence of one being the intrinsic principle of the other[60]. In a different context, Jerome states that the universal human is essentially a particular human being, because "being a human" is predicated per se of any particular human[61]. From these, we can conjecture the following: Two objects are essentially identical if one can be predicated about the other per se (i.e., non-accidentally)[62] or if they are one another's intrinsic principles (these two being probably two sides of the same coin), and they are inseparable; the existence of other conditions is not indicated in the text. Despite essential identity and mutual inseparability, two objects can be formally different if they can be attributed incompatible properties (such as being instantiable by multiple beings and not being instantiable by multiple beings). Partisans of Wyclif's philosophy tend to construe formal distinction as, at least to some degree, *a parte rei* rather than purely conceptual, despite formulations such as "formalis vel secundum racionem"[63], and analogies between Jerome's treatises and Wyclif's *De universalibus* seem to support the same assumption in the case of Jerome.

These fundamental views are the ontological core of Jerome's solution to the three sophistical arguments. Accordingly, the logic and semantics of the *Argumenta sophistica* address the relationship between syllogistic reasoning and different forms of identity and the semantics of sentential nominalizations.

3.1 First Argument

The opening argument proposed by Blasius is as follows:

> If some animal is common to a human and to a donkey, let it be called "A". Then A is a donkey and a human. Then we argue as follows: this is a donkey, therefore, this is a non-human. The inference holds as a deduction from an inferior term to a su-

59 Hieronymus de Praga, *Quaestio de veritatibus generalibus*, p. 8, l. 89–90: "[…] non sit dare genus separatum a specie, aut speciem ab individuo, aut retrorsum, existere […]."

60 Hieronymus de Praga, *Quaestio de veritatibus generalibus*, p. 8, l. 84–86: "Sed quicunque dicit speciem, id est veritatem specificam, posse esse sine generali veritate, que genus est sive (sine *ed.*) esse generis, dicit rem creatam posse esse sine suo intrinseco principio."

61 Hieronymus de Praga, *Quaestio de formis universalibus*, p. 49, l. 1110–1114: "Quamvis homo communis non sit homo singularis formaliter, verumtamen est essencialiter. Patet, quia in predicatis per se idem est ipsum et ipsum esse, sed esse hominem est predicatum per se cuiuslibet hominis singularis – ergo est idem cum quolibet singulari homine."

62 Hieronymus de Praga, *Quaestio de formis universalibus*, p. 45, l. 980–985: "Quomodo ergo erit conveniencia eorum essencialis? Constat autem logicis sapientibus quod Sor et Plato et ceteri particulares homines conveniunt in esse hominem tamquam in esse essenciali requisito ad quemlibet eorundem, cum quilibet eorum essencialiter sit homo, cum nulli eorum accidit humanitas sive (sine *ed.*) esse hominem […]."

63 Iohannes Wyclif, *Tractatus de universalibus*, p. 91, l. 138–140. For the Wycliffite notion of formal distinction, see A. Conti, "Analogy and Formal Distinction: On the Logical Basis of Wyclif's Metaphysics", in *Medieval Philosophy and Theology*, 6 (1997), p. 133–165; Gaskin, "*Complexe Significabilia* and the Formal Distinction" and A. Conti, "John Wyclif and the Theory of Complexly Signifiables", in *Vivarium*, 47 (2009), p. 74–96; and (for the Bohemian context) S. Sousedík, "Pojem 'distinccio formalis' u českých realistů v době Husově [The Notion of Formal Distinction in the Works of Czech Realists in the Time of John Hus]", in *Filosofický časopis*, 18 (1970), p. 1024–1029.

> perior term in the affirmative case. And then <we argue> as follows: this is a non-human, therefore, this is not a human. And <Jerome> has previously conceded that this is a human. The two are contradictory.

The argument is a straightforward *reductio*. According to Blasius, Jerome's view that universals are objects shared by their instances is self-contradictory. The reason is that such shared objects would be identifiable with their instances, and hence one could assign incompatible properties to them.

Jerome replies as follows:

> In reply, I allow that the common animal be called "A". And I concede that A is a donkey and a man. And when you argue "this is a donkey; therefore, this is a non-human," I concede the inference and its consequent. And when you argue "this is a non-human; therefore, this is not a human," I deny the inference. But the following inference is valid: "this is a non-human; therefore, this is a thing that is not a human." The reason is that the negation in the consequent should apply to what "human" was term-negated for in the antecedent, and nothing more. This is why in theological contexts, retaining the same form of argument, this is invalid: "this God is non-the-Father; therefore, this God is not the Father," but this inference is valid: "therefore, this God is a thing that is not the Father".

Jerome targets the inference "this is a non-human; therefore, this is not a human" based on the logic of negation, where the underlying principle, which he claims to have been violated in the opening argument, is that the use of negation must be coherent throughout the entire argument. Specifically, Jerome distinguishes between propositional negation (*negatio negans*) and term negation (*negatio infinitans*), as signalled by the terms "negari" and "infinitatum". He attempts to distinguish the following two inference-schemes:

> [3] **A is a non-B; therefore A is not a B.**
> [3*] **A is a non-B; therefore A is a thing that is not a B.**

The first he considers to be incorrect and the second correct. In other words, Jerome's realist theory of universals, influenced by Wyclif, urges a careful analysis of negative statements. The fine-grained ontology of identity (accepting other forms of identity besides the simple numerical one) requires a fine-grained logic of identity, and the logic of negation is the other side of the same coin. To motivate the crucial distinction, Jerome postulates an analogy to a Trinitarian paralogism[64]. He denies the following pair of inferences:

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64 For a basic overview, see O. Hallamaa, "Defending Common Rationality: *Roger Roseth* on Trinitarian Paralogisms", in *Vivarium*, 41 (2003), p. 84–119; A. Maierù, "Logique et théologie trinitaire dans le Moyen Âge tardif: deux solutions en présence", in M. Asztalos (ed.), *The Editing of Theological and Philosophical Texts from the Middle Ages: Acts of the Conference Arranged by the Department of Classical*

> **[3a] An animal is a non-human [e.g. a donkey]; therefore, an animal is not a human.**
> **[3b] God is a non-the-Father [e.g. the Son]; therefore, God is not the Father.**

and concedes the following pair:

> **[3a*] An animal is a non-human [e.g. a donkey]; therefore, an animal is a thing [i.e. a donkey] that is not a human.**
> **[3b*] God is a non-the-Father [e.g. the Son]; therefore, God is a thing [e.g. the Son] that is not the Father.**

The logic of the Trinity serves here as a justification for the logic of universals. Trinitarian paralogisms, such as [**3b**] or, more typically:

> **[TP] God is (identical to) the Father and God is (identical to) the Son; therefore, the Father is (identical to) the Son,**

are discussed and dismissed by both realists and nominalists. Nominalist logic and ontology are based on the identity-theory of predication, the view of syllogistics as the logic of identity-statements, and only admitting numerical identity, i.e. denying specific and generic identity. If being God or the divine essence is one simple entity, the straightforward application of these assumptions leads to paralogisms such as [TP].

There are, apparently, three possible solutions to these paralogisms: to admit that Trinitarian theology is self-contradictory, to revise the logic and ontology of identity, and to restrict the application of logic. The first does not appear acceptable to medieval authors. The second is not very attractive for a nominalist, as it is a slippery slope towards accepting other forms of identity and distinction beside the numerical, such as formal distinction – in other words, towards some version of ontological realism. Therefore, medieval nominalists lean towards some form of the third strategy[65]. As possible ontological commitments are not an issue for realists, they can afford to take the second way out, thereby preserving the universality of logic. Jerome endorses the [**3b***]-style paraphrases, which were accepted by some

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Languages, University of Stockholm, 29–31 August 1984, Stockholm, Almqvist & Wiksell International, 1986, p. 184–212; S. Knuuttila, "The Question of the Validity of Logic in Late Medieval Thought", in R. Friedman, L. O. Nielsen (eds.), *The Medieval Heritage in Early Modern Metaphysics and Modal Theory, 1400–1700*, Dordrecht, Kluwer Academic Publishers, 2003, p. 121–142 and S. Knuuttila, "Supposition and Predication in Medieval Trinitarian Logic", in *Vivarium*, 51 (2013), p. 260–247.

65 A. Maierù, "Logique et théologie trinitaire: Pierre d'Ailly", in Z. Kaluza, P. Vignaux (eds.), *Preuves et raisons à l'Université de Paris: Logique, ontologie et théologie au XIVe siècle,* Paris, Vrin, 1984, p. 253–268 and F. Hoffmann, "Robert Holcot – die Logik in der Theologie", in P. Wilpert, W. P. Eckert (eds.), *Die Metaphysik im Mittelalter: Ihr Ursprung und ihre Bedeutung*, Berlin, Walter de Gruyter, 1963, p. 624–639 and "Der Wandel in der scholastischen Argumentation vom 13. zum 14. Jahrhundert, aufgezeigt an zwei Beispielen: Robert Holcot und William (Johannes?) Crathorn (1330–1332 in Oxford)", in A. Speer (ed.), *Die Bibliotheca Amploniana: Ihre Bedeutung im Spannungsfeld von Aristotelismus, Nominalismus und Humanismus*, Berlin, Walter de Gruyter, 1995, p. 301–322 and M. Hanke, "Trinitární paralogismy, univerzálnost logiky a vyústění středověké nominalistické tradice [Triniatrian Paralogisms, Universality of Logic, and the Outcome of the Mediaeval Nominalist Tradition]", in *Studia Neoaristotelica*, 12 (2015), p. 45–75."

contemporary nominalists as well[66]. That makes his answer acceptable even for his ideological opponent. For one thing, while Jerome's solution applies consistently to the logic of the Trinity and the logic of universals, nominalists are in need of a good answer as to why the same strategy cannot be accepted universally.

As a final note, for both the argument and Jerome's response, there is a corresponding passage in Wyclif's *De universalibus*[67], but, needless to say, there is nothing specifically Wycliffian in this particular strategy.

3.2 Second Argument

The translation of the second argument and its resolution is interpretation-laden. The passage contains sentences such as "nihil est quod ydea est" where the phrase "quod ydea est" admits of at least two readings. First, it can be construed as a that--clause, in which case the sophism would address the propositional ontology and the logic of sentential nominalizations. Second, it can be construed as a relative clause.

Let us start by assuming that the *quod*-constructions were used as sentential nominalizations. On this construal, the argument may be translated as follows:

> Nothing is that-an-idea-exists; therefore, an idea does not exist. The inference is correct and the assumption is proved as follows: something is not that-an-idea-exists; therefore, nothing is that-an-idea-exists. The inference holds as a deduction from a particular statement to the corresponding universal. The assumption is proved as follows: this is not that-an-idea-exists; therefore, something is not that-an-idea--exists. Therefore etc.

The argument is a concatenation of inferences connecting successively the following statements:

(α) This is not that-an-idea-exists.
(β) Something is not that-an-idea-exists.
(γ) Nothing is that-an-idea-exists.
(δ) There are no ideas.

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66 Iohannes Buridanus, *Iohannis Buridani Tractatus de consequentiis*, ed. H. Hubien, Louvain, Publications universitaires, 1976, p. 42–43 and 85 and Petrus Aliacensis, *Quaestiones Magistri Petri de Aylliaco cardinalis cameracensis super primum, tertium et quartum libros Sententiarum*, [Paris], Johannes Barbier, [1508–1510]), I, q. 5, art. 2.

67 Iohannes Wyclif, *Tractatus de universalibus*, p. 85, l. 16–18: "Secundo arguitur idem expositorie sic: Hoc est homo, demonstrando genus animalis. Et hoc est asinus. Igitur, homo est asinus." Iohannes Wyclif, *Tractatus de universalibus*, p. 100, l. 48–62: "Et conformiter dicitur ad secundam argutiam, quae sinistre vocatur 'syllogismus expositorius', nam in syllogismo expositorio notum est quod oportet medium esse formaliter hoc aliquid, et tunc, secundum regulam Aristotelis, necesse est extrema coniungi. Quando autem medium est formaliter quid, id est forma universalis superior ad utrumque extremum, non est color in argutia cum perinde est acsi sic argueretur: animal est homo et animal est asinus, igitur homo est asinus, quod simplices plebei sciunt non habere colorem commune. Sed bene sequitur ex dictis praemissis quod homo sit illud quod est asinus. Et conformiter respondet fidelis haeretico sic arguenti: Ista communis essentia est Pater. Et ista eadem essentia est Filius. Igitur Pater est Filius."

The only step that receives any justification is from (β) to (γ), to be identified as some form of generalization. The reasoning is not clear, as inferences of this kind were not considered generally valid by scholastic logicians, which makes the argument easy to dismantle[68]. At the very least, Jerome might have requested clarification of this step. Instead, though, he replies as follows:

> I reply by denying the assumption that nothing is that-an-idea-exists. To the proof "something is not that-an-idea-exists, therefore, nothing is that-an-idea-exists", I reply that if "not" goes with the subject-term, <the antecedent> is true, but it does not imply that nothing is that-an-idea-exists, because in that case the argument does not infer a universal statement from a particular statement. The reason is that the statement is particular if the negation goes with the predicate-term, not if it goes with the subject-term.

In a nutshell, Jerome exposes the ambiguous use of negation in the premise of "β, therefore γ". (β) has two readings based on whether the negation is assigned to the subject-term or the predicate-term. On the first reading, (β) is true but does not imply (γ), as the inference is not an instance of generalization, because (β) is not a particular statement with respect to (γ). On the second reading, (β) is particular; if, as a result, it were to imply (γ), Jerome would be pressed to deny that it is true, but he does not say that explicitly.

Two problems with this passage are its brevity and the lack of textual parallels in Jerome's extant writings. Jerome does not appear to address the logic of such statements, making it difficult even to say what the subject-term and the predicate-term are in this context[69]. For this reason, the reconstruction must rely on Jerome's propositional ontology, another insufficiently developed topic. As a result, interpretation can only be conjectural.

The most straightforward interpretation of Jerome's reply is that the subject--term and predicate-term of the entire sentence are addressed, where the subject--term is "something" and the predicate-term is either "that-an-idea-exists" or the combination of this nominalization and the copula "is"[70]. On this interpretation, the two readings of (β) are as follows:

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68 For this principle, called "lex subalternarum", see (for instance) Petrus Hispaniensis, *Tractatus called afterwards Summule logicales, first critical edition from the manuscripts, with an Introduction*, ed. L.M. de Rijk, Assen, van Gorcum & Co., 1972, p. 7, commented on by Iohannes Buridanus, *Summulae de Dialectica, an annotated translation, with a philosophical introduction by Gyula Klima,* transl. G. Klima, Yale Library of Medieval Philosophy, New Haven / London, Yale University Press, 2001, p. 41–42.

69 Jerome's only other uses of this distinction are in his analyses of the sentences "quilibet homo est homo", "homo est quilibet homo" (Hieronymus de Praga, *Quaestio de formis universalibus*, p. 37, l. 695–720), and "signum est signum" (Hieronymus de Praga, *Disputatio magistri Blasii Lupi contra magistrum Hieronymum de Praga*, p. 137, l. 48–55).

70 There is no precise textual evidence for Jerome endorsing one of these options in particular, although some of his formulations suggest that the copula may not be part of a predicate-term. See Hieronymus de Praga, *Quaestio de veritatibus generalibus*, p. 11, *Quaestio de formis universalibus*, p. 35 and 37.

[**subj**$_1$] Some non-thing is that-an-idea-exists.
[**pred**$_1$] Something fails to be that-an-idea-exists.

It is clear that [**subj**$_1$] does not imply (δ), whereas [**pred**$_1$] might (in the aforementioned sense). Their valuation is less clear. The truth of [**subj**$_1$] seems to imply that the proposition that-an-idea-exists can be "identified" with something that does not exist. This could simply mean that some conceivable ideas do not exist, which is true on Jerome's account. For instance, Jerome believes that impossible objects do not have corresponding ideas[71], so presumably, for instance, the proposition that-chimeras-are-flying does not exist – it is a non-being. It is even more problematic to explain why [**pred**$_1$] is false. As the proposition that--an-idea-exists can be identified with some divine idea(s), any non-divine being fails to be identifiable with it (at least according to Jerome's view held in other contexts). The proof could still be dismissed as a failed generalization, especially as Jerome does not explicitly say that the inference is valid on this reading, but nothing in the text points to that intention. In short, this interpretation does not seem to be satisfactory.

The less straightforward reading is to assume that the terms "subject" and "predicate" refer to the components of the nominalization, resulting into the following paraphrases:

[**subj**$_2$] Something is that-non-ideas-exist.
[**pred**$_2$] Something is that-ideas-do-not-exist.

[**subj**$_2$] denotes that some object can be identified with the proposition that-non--ideas-exist and it is reasonable to assume that it is true since any non-divine being can be identified with non-ideas. To see that, just replace "non-idea" with, for instance, "teddy bear". It is also reasonable to deny that [**subj**$_2$] implies (δ) since (δ) is about ideas but [**subj**$_2$] is not. If ideas do actually exist, which is what Jerome assumes, [**pred**$_2$] is false, since no existing being can be positively identified with the non-existence of ideas[72]. It is difficult to see how (δ) can be a generalization of [**pred**$_2$] without loosening the syntax, but the inference seems acceptable. This interpretation satisfies the requirements but seems too far-fetched.

The alternative assumption that the "quod ydea est" is a relative clause raises a problem when it comes to translating the opening argument, namely that, unlike in the previous reading, it is difficult if not impossible to translate certain segments of the Latin text without translating-away the problem by choosing one of the readings. To compensate for that, some portions of the text will be left without translation:

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71 See Hieronymus de Praga, *Quaestio de mundo archetypo*, in Hieronymus de Praga, *Quaestiones, Polemica, Epistulae*, p. 177, l. 448–455.

72 There is an analogy for this view of negative propositions in Wyclif's *De ente predicamentali*. On this see below.

> *Nihil est quod ydea est*; therefore, an idea does not exist. The inference is correct and the assumption is proved as follows: *aliquid non est quod ydea est*; therefore, *nihil est quod ydea est*. The inference holds as a deduction from a particular statement to the corresponding universal. The assumption is proved as follows: *hoc non est quod ydea est*; therefore, *aliquid non est quod ydea est*. Therefore etc.

and the following translation of the solution:

> I reply by denying the assumption that *nihil est quod idea est*. To the proof "*aliquid non est quod idea est*, therefore, *nihil est quod idea est*", I reply that if "*non*" goes with the subject-term, the <antecedent> is true, but it does not imply that *nihil est quod idea est*, because on that interpretation the argument does not infer a universal statement from a particular statement. The reason is that the statement is not particular if the negation goes with the subject-term, but only if it goes with the predicate term.

This appears to give us the two following readings of (β)[73]:

> [**subj**$_3$] Something is <an object> such that it is not an idea.
> [**pred**$_3$] It is not the case that something is <an object> such that it is an idea.

Again, note that Jerome did not attack the fact that the criticised inference rests on what appears to be a problematic use of the quantifiers "aliquid" and "nihil", referred to as "a particulari ad universalem". The phrase "a parte subiecti" would on this reading refer to the "subject-term" "quod". As a result, [**subj**$_3$] is true but clearly does not ultimately entail that there are no ideas. The phrase "a parte praedicati" would refer to the verb. As a result, the sentence entails that there are no ideas and would not be considered true by a realist (and arguably even by the majority of nominalists). The problem with this interpretation is that it is difficult to see why [**pred**$_3$] should count as a particular, rather than a universal statement. To summarize, this interpretation is not entirely satisfactory either.

Last but not least, it is possible that Jerome's reply is unfinished, perhaps even on purpose. This seems to be supported by the fact that the analysis of the "ex parte predicati"-reading is incomplete. If Jerome himself wrote it down, as we conjecture, this suggests that in the middle of writing it down, he realized that it would not work. A standard solution to sophistical arguments is to say either that they have true premises, or that they are logically valid, but never both. The procedure can be carried out in an almost mechanical way: find a dubious inference, identify a source of ambiguity, and show that on one reading the inference is invalid, while on the other its antecedent is false. As a matter of fact, the response seems to go that way. Perhaps Jerome followed this procedure up to (somehow) proving the first part (true premises, invalid inference), but had difficulties proving the second part (valid inference, false

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73 There is possibly another form of the relative-clause-reading, going along the lines of "Something is <an object> such that it is not identical to an idea". It faces essentially the same issues.

premises), and, realizing that this strategy would not get him far, never resumed it. A clear disadvantage of this hypothesis is that it appears to be practically untestable.

3.3 Third Argument

Lastly:

> An asininity is no-universal-human-existing. And every asininity is an entity or a truth, therefore an entity is no-universal-human-existing. Therefore, it is actually the case that no universal human exists. Therefore, etc.

The last argument is the only genuinely sophistical argument of the three, in the sense that is clearly wrong and the only question is why. The former two arguments could have been regarded as genuine counterarguments, pointing out that Wycliffian realism is self-contradictory, and they could be incorporated into a nominalist world-view. The last one is wrong even by nominalist standards. The entire argument rests on the series of statements containing the sentential nominalization "no-universal-human-existing". From the nominalist standpoint, every step up to the last is acceptable if construed as a linguistic statement. In the last step, the sentential nominalization is used as part of a statement about extra-linguistic reality. In other words, the entire argument rests on an ambiguity and is fallacious. Presumably, a nominalist solution would invoke a semantics of sentential nominalizations and the distinction between material and personal supposition in the "significative" and "material" use of sentential nominalizations.

Jerome's response takes a slightly different route:

> I reply to the argument by conceding the inference and its consequent, namely: that a truth is no-universal-human-existing (understanding truth materially). But that does not imply that it is actually the case that there is no universal human. It merely implies that there is a thing that is no universal human. Therefore I deny the following inference: "an entity is no-universal-human-existing; therefore, it is actually the case that no universal human exists".

On Jerome's reading, all these statements are about truths rather than sentences, so there is no use-mention ambiguity to be uncovered. The problem is to be solved in terms of the ontology of truths, so that in the key phrase "understanding truth materially" (*capiendo veritatem materialiter*) "material" refers to the material aspect of a truth.

A similar distinction appears to be well-established in the Wycliffite context. In *De ente predicamentali* Wyclif considers the status of negations like me-not-being-a--donkey and no-human-existing. He says that these nominalizations have two different readings, a "affirmative" or "simple" one and a "negative" or "essential" one. On the affirmative or simple reading, nothing is no-human-existing, since negative truths are denied real correlates[74], whereas on the negative or essential reading, ev-

74 For further detail, see Gaskin, "John Wyclif and the Theory of Complexly Signifiables", p. 77–78.

erything that is not a human being is no-human-existing[75]. The second example is close to Jerome's response, as the nominalized sentence in question is negative and, at least for him, false.

Second, Stanislaus of Znojmo, one of the most important Prague realists in Jerome's day, discusses the sentence "No human is a donkey" and the corresponding truth "not-human-being-a-donkey" and the twofold reading of this sentential nominalization. First, the nominalization can be interpreted "materially" as representing any entity in the world. Second, it can be interpreted "simply" as representing a specific negative form, which cannot be identified with any other being in the world[76].

Third, there is an argument from Blasius earlier in the disputation that has some resemblance to the third argument:

> In reality every human is an animal. Therefore, a being is that every human is an animal. So let that being be given; let it be, say, Socrates[77].

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75 Iohannes Wyclif, *De ente predicamentali*, ed. R. Beer, London, Trübner & Co., 1891, p. 9 [corrected by Mark Thakkar]: "Nulla enim negacio est formaliter positivum, ut me non esse asinum maneret si per impossibile Deus et omnis affirmacio desineret esse. Ideo solet dici communiter quod tales termini negativi possunt intelligi simpliciter quasi affirmative pro veritate negacionis quam primo significant, et nulla talis est pars universitatis create […]. Secundo potest intelligi negative, quasi in predicacione secundum essenciam, et sic omne ens est me non esse asinum, et quotlibet talia, cum convertuntur cum transcendente; et refert multum sic accipere, quia negative accipiendo concedendum esset quod quidlibet aliud ab homine est nullum hominem esse, sed affirmative accipiendo nichil est nullum hominem esse, quia illud non est."

76 Stanislaus de Znoyma, *Mistra Stanislava ze Znojma „De vero et falso"*, ed. V. Herold, Praha, ÚFS ČSAV, 1971, p. 52: "Unde et illa veritas 'nullus homo est asinus' quasi materialiter est quodlibet ens mundi secundum talem divisionem […]. Igitur de quanto ly 'non hominem esse asinum' supponit materialiter significative, sic de quolibet ente verum est dicere quod ipsum est non hominem esse asinum, sed de quanto ly 'non hominem esse asinum' supponit simpliciter significative pro illa pura forma negativa, sic de illa sola forma verum est dicere quod ipsa formaliter est non hominem esse asinum et nec de Deo, nec de lapide, nec de homine etc." For analyses of Stanislaus's treatise, see G. Nuchelmans, "Stanislaus of Znaim (d. 1414) on truth and falsity", in E. P. Bos (ed.), *Mediaeval Semantics and Metaphysics. Studies Dedicated to L.M. de Rijk*, Nijmegen, Ingenium Publishers, 1985, p. 318–319 and S. Sousedík, "Traktát Stanislava ze Znojma 'De vero et falso'", in *Filosofický časopis*, 63 (2015), p. 831–857. For Stanislaus's life and work, see S. Sousedík, "Stanislaus von Znaim (†1414), Eine Lebensskizze", in *Mediaevalia philosophica Polonorum*, 17 (1973), p. 37–56.

A terminologically similar passage is contained in Stanislaus's *De universalibus*. See Stanislaus de Znoyma, *De universalibus*, ed. M. H. Dziewicki, in M. H. Dziewicki (ed.), *Miscellanea philosophica Iohannis Wyclif*, vol. II, London, Trübner & Co., 1905, p. 100 [corrected by Mark Thakkar]: "ista proposicio: 'verum et bonum est nullum lapidem existere' habet duos sensus, unum verum et alium falsum. Ut si ly 'nullum lapidem existere' tenetur materialiter significative pro re que est non existencia lapidis, tunc est illa vera: 'verum et bonum est nullum lapidem existere', quia hoc (demonstrando Deum) est nullum lapidem existere, quia hoc est, igitur vel est lapidem existere vel est non lapidem existere; sed non primum, igitur secundum. Et per consequens hoc verum et bonum est nullum lapidem existere in tali sensu. Alio modo accipitur ly 'nullum lapidem existere' formaliter significative pro negacione, seu pro forma pure negative a parte rei contradictorie opposita huic veritati affirmative 'lapidem existere'."

77 Blasius Lupus in Hieronymus de Praga, *Disputatio magistri Blasii Lupi contra magistrum Hieronymum de Praga*, p. 120, l. 82–84: "Item realiter omnis homo est animal. Ergo ens est quod omnis homo est animal. Detur ergo illud ens, sit gracia exempli Sor."

Blasius's identification of Socrates, a particular human being, with the fact that every human is an animal resembles (among others) the Buridanian view whereby a that--clause denotes an actual entity on the significative reading. To identify such an entity, one needs to paraphrase the sentential nominalization into a relative clause or its equivalent (such as participle or adjective), for instance, "that every human is an animal" into "every man who is an animal". The looked-for entity is whatever the term "man" refers to in this sentence – as a result, every man who is an animal, i.e. every man[78].

In this particular instance, Jerome replies:

> I do not admit that, but I claim that that being is the animal or universal animality. For no other true thing or primary being besides the universal animality is that--every-human-is-an-animal, just as no other true thing or primary being besides the divinity common to the three persons is that-every-divine-person-is-God. Therefore the master's response was wrong to use Socrates to designate the being that--every-human-is-an-animal[79].

In the realist paradigm, the looked-for entity is determined in a different way: it is the (more general) predicate term in the nominalization that determines what entity the proposition is identical to. For a nominalist, *that-A-is-B* is the aggregate of A's, whereas for a realist, *that-A-is-B* is the B-ness[80]. As a result, the truth *that-a--human-is-an-animal* is identical to the universal form of animality.

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78 The basic strategy is described by Buridan as follows (Iohannes Buridanus, *Summulae de propositionibus*, ed. R. van der Lecq, Turnhout, Brepols, 2005, p. 107): "Circa huiusmodi propositiones notandum est quod oratio infinitivi modi, ut 'hominem currere', posita in huiusmodi propositionibus, quae solet vocari dictum, aliquando capitur secundum suppositionem materialem, et tunc supponit pro aliqua propositione, ut 'hominem currere' pro tali propositione 'homo currit', et aliquando significative sumitur, et si supponat pro aliquo, supponit pro re pro qua supponit subiectum dicti tali determinatione determinatum, ut 'hominem currere' pro homine currente et 'hominem esse album' pro homine albo." For other examples, see Iohannes Buridanus, *Summulae de propositionibus*, p. 109 and *Le Traité de l'âme de Jean Buridan*, ed. B. Patar, Louvain-la-Neuve, Éditions de l'Institut supérieur de philosophie, 1991, p. 735. For further analysis of Buridan's position, see (e.g.) M. Hanke, "John Buridan's Propositional Semantics", in *Studia Neoaristotelica*, 6 (2009), p. 183–208 and M. Hanke, *Jan Buridan a nominalistická teorie racionality. Studie k možnostem scholastické logiky* [John Buridan and the Nominalist Theory of Rationality. A Study on the Possibilities of Scholastic Logic], Olomouc, Univerzita Palackého v Olomouci, 2011, p. 63-77.

79 Hieronymus de Praga, *Disputatio magistri Blasii Lupi contra magistrum Hieronymum de Praga*, p. 120, l. 85–93 [corrected and emended]: "Non admitto hoc, sed dico quod illud ens est animal sive animalitas communis. Non enim est <aliquod> aliud verum nec aliquod aliud ens primarium quod omnis homo est animal nisi animalitas in communi, sicud non est aliquod aliud verum nec aliquod aliud ens quod omnis persona divina est Deus nisi Deitas communis tribus personis. Et ideo magister replicans male assignavit per Sor ens quod omnis homo est animal etc."

80 See, for instance, Stephanus de Palecz, *Commentarius in I-IX capitula tractatus De universalibus Iohannis Wyclif Stephano de Palecz ascriptus*, ed. I. Müller, Praha, Filosofia, 2009, p. 117: "Et cum res universales sint formae speciales, itaque illa veritas. Humanitas <et> animalitas, quarum quaelibet est communis veritas respectu simplicis apprehensionis, sunt incomplexae, ut quia verum est quod omnis homo est animal. Et ergo veritas est omnem hominem esse animal, et non alia quam est animalitas quae est forma et quidditas cuiuslibet hominis et cuiuslibet animalis. Sic etiam, quia verum est quod omnis homo est homo et ergo veritas est, et alia non est talis nisi humanitas communis qua omnis homo est

Returning to the solution to the third sophistical argument, Jerome agrees that no-universal-human-existing is a truth in the "material" sense. Assuming that he is working within the framework established by Wyclif and Stanislaus of Znojmo, this means that the negative nominalization has some objective correlate, in this case any non-human entity (e.g. a cat). However, the existence of such an entity does not preclude the existence of a universal human. From the logical point of view, the crucial step in the sophistical argument – the inference "an entity is no-universal--human-existing; therefore, it is actually the case that no universal human exists" – relies on an illegitimate shift to a different interpretation of the nominalization: from "negative" or "essential" to "affirmative" or "simple". This shift is straightforwardly analyzable in terms of Wycliffite semantics[81].

homo que est forma et quidditas cuiuslibet hominis." The situation is more complicated in the case of nominalizations of existential statements, which are identified with the existing being itself, so that for instance God is identified with the proposition that-God-exists (see Wyclif, *Tractatus de universalibus*, p. 114 and 118; Hieronymus de Praga, *Quaestio de formis universalibus*, p. 34; *Quaestio de universalibus extra signa*, p. 65; and *Disputatio magistri Blasii Lupi contra magistrum Hieronymum de Praga*, p. 117).

81 Where the manuscript has "res est que nullus homo communis est", this could be a scribal error for "res est quod nullus homo communis est". With the proposed emendation in place, the argument is smoother because the steps all contain equivalent nominalizations. The *que*-reading says that there is a thing (*res*) that is no universal human, whereas the *quod*-reading claims that such a proposition exists (whatever that means). Both readings seem doctrinally acceptable to Jerome.

Appendix
Critical Edition of Blasius Lupus's and Jerome of Prague's *Argumenta sophistica*

Ratio edendi

In the preparation of this edition, we have followed the transcription guidelines established by Bohumil Ryba that are usually used for Bohemian medieval texts[82]. Thus, while we have introduced modern punctuation and added titles in pointed brackets, we have refrained from regularizing the orthography of the *Argumenta*. This allows the reader to access some interesting details about the text. As noted in §2.1 above, we have in our hands a record of a university debate written down by one of Jerome of Prague's students. Jerome returned to the record later to add important notes and passages that his student had missed, including his reply to the second sophistical argument. A closer study of both hands reveals that while Jerome's student used the spelling "ydea" to denote divine ideas, Jerome himself preferred the spelling "idea".

The reader will find mentions of corrections, additions or notes in the manuscript in the critical apparatus. Several times, the scribe added the text in such a way that some of these additions are distinguishable only through a very careful paleographical or doctrinal analysis. The insufficiency of previous such analyses has led us to publish this reedition together with our doctrinal analysis, which should make the text more accessible. Our chosen title corresponds to the title present in the manuscript. As the *Argumenta* do not contain any references to authorities, it was not necessary to include an index of sources.

Conspectus siglorum

N MS Prague, KMK, N 12, fol. 42r

Conspectus abbreviationum

add.	*addidit* (added)
del.	*delevit* (deleted)
in marg.	*in margine*
suppl.	*supplevit* (supplied)
suprascr.	*suprascripsit* (wrote above)

82 After being accessible only in typewritten form for a long time, an extensive selection from these guidelines was recently published in D. Havel, H. Krmíčková, *Paleografická* čítanka. *Literární texty* [Paleographical Textbook. Literary texts], Brno, Masarykova univerzita, 2014, p. 89–93.

<Blasius Lupus et Hieronymus de Praga>
ARGUMENTA SOPHISTICA N42r
<Argumentum primum>

Si aliquod animal est commune ad hominem et asinum, vocetur illud "A". Tunc A esset asinus et homo. Tunc arguitur sic: Hoc est asinus, ergo hoc est non-homo. Consequencia tenet ab inferiori ad superius affirmative. Et tunc sic: Hoc est non-homo, ergo hoc non est homo. Et prius concessit, quod hoc est homo. Sunt duo contradictoria.

<Responsio ad argumentum primum>

Ad argumentum admittitur, quod animal commune vocetur "A". Et conceditur, quod A est asinus et homo. Et cum arguitur "hoc est asinus, ergo hoc est non-homo", conceditur consequencia et consequens. Et dum arguitur "hoc est non-homo, ergo hoc non est homo", negatur consequencia, sed bene sequitur "hoc est non-homo, ergo hoc est res que non est homo". Racio huius est quia pro quo in antecedente infinitatum est "homo", pro illo et non ampliori in consequente debet negari. Unde in divinis simili forma arguendi retenta non sequitur "hic Deus est non-Pater, igitur hic Deus non est Pater", sed sequitur "ergo hic Deus est res que non est Pater".

<Argumentum secundum>

Item nihil est quod ydea est, igitur ydea non est. Consequencia est bona. Assumptum probatur quia aliquid non est quod ydea est, igitur nihil est quod ydea est. Consequencia tenet a particulari ad suam universalem. Assumptum probatur quia hoc non est quod ydea est, ergo aliquid non est quod ydea est. Igitur etc.

<Responsio ad argumentum secundum>

Respondeo negando assumptum quod nihil est quod idea est. Ad probacionem "aliquid non est quod idea est, igitur nihil est quod idea est" dico quod si "non" tenet se ex parte subiecti tunc verum est, sed ex illo non sequitur quod nihil sit quod idea est, quia tunc non est argumentum a particulari ad universalem, quia quando negacio tenet se a parte subiecti non est particularis, sed quando se tenet a parte predicati.

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4 ad hominem] *suppl. Hieronymus de Praga* | vocetur illud "A"] admitto *suprascr. Hieronymus de Praga* | **5** Tunc … homo] concedo *suprascr. Hieronymus de Praga* | **5/6** ergo … non-homo] concedo consequenciam *suprascr. Hieronymus de Praga* | **10** Ad argumentum] Respondeo *in marg.* | **27** Respondeo] Respondeo *in marg.* | **27/32** Respondeo … predicati] *suppl. Hieronymus de Praga*

<Argumentum tertium>

Item asineitas est nullum hominem communem esse, et omnis asineitas est entitas vel veritas, ergo entitas est nullum hominem communem esse. Ergo de facto ita est quod nullus homo communis est. Igitur etc.

<Responsio ad argumentum tertium>

Ad argumentum concedo consequenciam et consequens, videlicet quod veritas est nullum hominem communem esse (capiendo veritatem materialiter). Sed ex hoc non sequitur, quod ergo de facto ita sit quod nullus homo communis est, sed quod res est que nullus homo communis est. Et ergo illam consequenciam nego: "Entitas est nullum hominem communem esse, ergo de facto ita est quod nullus homo communis est."

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38 Ad argumentum] Respondeo *in marg.* | **39** veritas] entitas *N, sed del. et* veritas *suprascr. Hieronymus de Praga* | **39**/**40** capiendo … materialiter] *suppl. Hieronymus de Praga* | **41** sed … est[2]] *suppl. Hieronymus de Praga*

BARBORA KOCÁNOVÁ

Was Weather Forecasting Studied in the Medieval Czech Lands? Notes on the Codicological Evidence*

In the late Middle Ages meteorology became a compulsory part of the curriculum at European universities, including Prague University. Derived from the Aristotelian tradition, medieval meteorology focused on the material and efficient causes of meteorological and similar phenomena, which were believed to result from wet and dry exhalations occurring in a sublunary world composed of four elements. Aristotelian meteorology neglected the primary causes of such phenomena, and as a consequence, excluded the field of weather forecasting, which was built mainly on the study of the movements of the celestial bodies[1]. Various sources clearly show that there was a steady interest in meteorology in the Czech Lands[2] – but what was the role of weather forecasting?

Thanks to the work of Gustav Hellmann, Stuart Jenks and Charles Burnett we know that Latin texts on weather forecasting in Western European medieval codices include: a) texts by Antique authors, e.g. a frequently copied passage from

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1 For more detail on this relationship see J.-M. Mandosio, "Meteorology and weather forecasting in the Middle Ages", in A. Fidora (ed.), *Die mantischen Künste und die Epistemologie prognostischer Wissenschaften im Mittelalter*, Köln / Weimar / Wien, Böhlau, 2013, p. 167–181.

2 Cf. B. Kocánová, "Mediaeval Meteorology in the Czech Lands", in *Historica. Series Nova*, 14 (2010), p. 45–57. Questions of meteorology were also regularly discussed at the annual disputations *de quolibet*; cf. B. Kocánová, "The Sublunary Phaenomena as a Subject of Medieval Academic Discussion: Meteorology and the Prague University *Disputationes de Quolibet*", in *Early Science and Medicine*, 22 (2017), p. 72–102. For the medieval and early modern history of meteorology see the first part of the monograph by J. Ducos, *La météorologie en français au Moyen Âge (XIIIe-XIVe siècles)*, Paris, Honoré Champion, 1998, and C. Martin, *Renaissance Meteorology: Pomponazzi to Descartes*, Baltimore, Johns Hopkins University Press, 2011.

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the encyclopedia *Naturalis historia* by Pliny the Elder; b) twelfth century Latin translations of Arabic authors and Ptolemy; c) medieval Latin treatises on weather forecasting from the twelfth and thirteenth centuries – usually short and simple texts, either independent or included in larger astrological summas; and d) more extensive treatises on the forecasting of atmospheric phenomena written in the early fourteenth century by authors in Oxford and in France[3].

The historian Stuart Jenks, who compiled a very useful bibliographic catalog of the texts mentioned above, says that all of the most popular treatises had been written by the middle of the fourteenth century, and that activity in the fifteenth century focused on the copying of older works[4]. To find new treatises from the fifteenth century we have to search among the manuscripts written in eastern Europe – in the Cracow region[5]. The most interesting treatise is *De mutatione aeris*, written in 1455 by Piotr Gaszowiec[6]. It is a manual for composing an almanac, i.e. an astrological calendar for the whole year. Moreover, the text specifies the rules that can be applied to the data in the almanac to obtain weather forecasts. The author asserts that the listed rules are the most useful ones, and indicates that he has tried them many times himself[7].

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3 Cf. the catalog and analysis of medieval texts on weather forecasting in Western European Latin manuscripts by S. Jenks, "Astrometeorology in the Middle Ages", in *Isis*, 74 (1983), p. 185–210 and 562, the study by G. Hellmann, "Die Wettervorhersage im ausgehenden Mittelalter (XII. bis XV. Jahrhundert)", in G. Hellmann, *Beiträge zur Geschichte der Meteorologie*, 3 vols, Berlin, Behrend, 1914–1922, II, p. 167–229, C. Burnett's introduction in G. Bos, C. Burnett, *Scientific Weather Forecasting in the Middle Ages. The Writings of Al-Kindī. Studies, Editions, and Translations of the Arabic, Hebrew and Latin Texts*, London, Kegan Paul International, 2000, p. 1–28. For a history of astrological weather forecasting in a wider context see B. Scofield, *A History and Test of Planetary Weather Forecasting*, 2010, Open Access Dissertations 221, p. 1–23 and A. Lawrence-Mathers, *Medieval Meteorology: Forecasting the Weather from Aristotle to the Almanac*, Cambridge, Cambridge University Press, 2020.

4 Jenks, "Astrometeorology", p. 187.

5 The importance of Cracow has been widely neglected in the literature on medieval weather forecasting due to the fact that the current bibliographical (Jenks, "Astrometeorology") and biographical (Hellmann, "Die Wettervorhersage") overviews focused on the Western European area. (In the context of the Middle Ages I understand a compilation to be a new treatise as well.)

6 The work has not yet been published, manuscripts with this text are MS Cracow, BJ, 793, fols 116v–120v, 155r–156v; MS Cracow, BJ, 1865, fols 184r–191v; MS Cracow, BJ, 1969, pag. 371–382; MS Cracow, BJ, 2252, pag. 200–220; MS Cracow, BJ, 2495, pag. 20–30; MS Cracow, BJ, 2496, fols 114v–121v; MS Dresden, Landesbibliothek, N 100, fols 174r–185r. Cf. G. Rosińska, *Scientific Writings and Astronomical Tables in Cracow: a Census of Manuscript Sources (XIVth–XVIth centuries)*, Wrocław, Ossolineum / Polish Academy of Sciences Press, 1984, no. 1256, and M. Markowski, *Astronomica et astrologica Cracoviensia ante annum 1550*, Firenze, Leo S. Olschki, 1990, p. 176–182. Piotr Gaszowiec z Lodzmierzy Polskiej (before 1430–1474) is the author of several computistic, astronomical, and astrological texts. For an overview of his work see Markowski, *Astronomica et astrologica*, p. 161–83. He obtained a Master's Degree at Cracow University, specialized in medicine (in Perugia), and then took the position of the king's doctor in Cracow in 1464. See M. Markowski, "Piotr Gaszowiec twórcą Krakowskiej komputystyki o zasięgu między-narodowym", in *Studia Mediewistyczne*, 25–1 (1988), p. 69–117 (in particular p. 71–72). Other important scholars in Cracow include Martin Król (Martinus Rex de Zurawica; c. 1422–1460), and John of Glogovia (1445–1507).

7 Petrus de Silesia, *De mutacione aeris*, MS Cracow, BJ, 2252, p. 200: "Modus disponendi almanach pro iudiciis mutacionis aure per singulos anni dies aptum cum quibusdam regulis generalibus huic negocio deservientibus. […] In secunda *(sc.* particula*)* descendam ad regulas et doctrinas specialiores et precipue usitatas et per me plerumque expertas."

The Cracow library includes numerous copies and excerpts from texts on weather forecasting – at least 73 texts in 29 manuscripts, which is a considerable number. The fact that the Cracow school of astronomy was significantly influenced by Prague University teachings[8] leads us to the question of whether there could have been an impulse for weather forecasting studies coming from the medieval Czech Lands. While Aristotelian meteorology is well documented, there are no direct reports on weather forecasting at Prague University in the Middle Ages, which compels us to examine the manuscripts themselves. The corpus of relevant manuscripts is not very large, but it is sufficient to provide valuable clues.

The largest collection of texts on weather forecasting is extant in a codex written in the mid-fifteenth century, MS Prague, NK ČR, III C 2. Next to treatises on astronomy, astrology, alchemy, mathematics and medicine this manuscript contains the following sixteen texts (with three of them repeated):

fols 49r–54r	[Albumasar, *Flores* (TK[9] 1013); excerpts]
fols 54v–56r	*De pluviis* [= Hermannus Dalmata, *Liber imbrium* (TK 319)]
fols 56r–57v	[*Jafar Indus* (TK 1684); excerpts]
fols 57v–58v	*De aura* [= *De praesagiis tempestatum* (TK 1211); Plinius Secundus, *Naturalis historia* XVIII,340–365]
fols 58v–59r	*De mansionibus Lunae*
fols 63ra–63vb	[ps.-Alkindus, *Saturnus in Ariete* (TK 1383)]
fol. 117va	*De pluviis* [Anonymus]
fols 117va–118rb	*De pluvia* [= Abenezra, *De mundo vel saeculo*: chapters *De pluviis*, *De ventis* and *De terrae motu* (TK 419)]
fol. 125rb	*Notamenta pulchra de aura*
fols 168vb–169vb	[ps.-Alkindus, *Saturnus in Ariete* (TK 1383); title on fol. 167ra]
fols 184va–186va	*De pluviis* [= Hermannus Dalmata, *Liber imbrium* (TK 319)]
fols 186va–188ra	*De ventis et pluvia* [= *Jafar Indus* (TK 1684)]
fol. 188vb	*Paucitas ymbrium et redundantia et colores nubium*
fol. 189ra	*De aeris mutatione* [= Bartholomaeus Parmensis?, *Iudicium particulare* (TK 252,668)]

8 The Cracow astronomical and astrological tradition began shortly after 1400, with the establishment of a chair of astronomy at the newly reopened Cracow University. It was called "Stobnerian" after its founder, the Cracow townsman John Stobner of Cracow who received his bachelor's degree in Prague in 1379; cf. P. W. Knoll, *"A Pearl of Powerful Learning": The University of Cracow in the Fifteenth Century*, Leiden / Boston, Brill, 2016, p. 136. The influence of Prague during the founding of the Cracow School of Astronomy is emphasized by J. B. Korolec, "La première réception de la philosophie islamique à l'Université de Cracovie", in C. E. Butterworth, B. A. Kessel (eds.), *The Introduction of Arabic Philosophy into Europe*, Leiden / New York / Köln, Brill, 1993, p. 112–130 (in particular p. 116). The chair was an exceptional institution in Central Europe. In addition, Martin Król founded a chair focusing solely on astrology in Cracow around 1460. Cf. A. Birkenmajer, "L'astrologie cracovienne à son apogée", in A. Birkenmajer, *Études d'histoire des sciences en Pologne*, Wrocław / Warszawa / Kraków, Zakład Narodowy im. Ossolińskich, 1972 (reprint), p. 474–482 (in particular p. 474).

9 TK refers to the work L. Thorndike, P. Kibre, *A Catalogue of Incipits of Mediaeval Scientific Writings in Latin*, London, Mediaeval Academy of America, 1963[2].

fols 189va–190ra	*De portis* [= *Apertio portarum* (TK 112)]
fols 190va–195rb	*De cometis*; *De mutatione aeris* [= Leopoldus Austriensis, *Compilatio de astrorum scientia*; extract][10]

The collection begins with weather forecasting rules based on the planet that has the strongest influence at the beginning of the respective astrological year (i.e. when the Sun enters Aries). This text, titled *Flores* (fols 49r–54r), was originally written by the Persian astrologer, astronomer and philosopher Abu Maʿshar (Albumasar, †886). Weather, or rather the influence of celestial bodies on earthly phenomena, was sorted by the individual planets, e.g.: "If Mars is in an air sign, it indicates some rain, […] thunder[11]." The Latin translation, most likely by John of Seville in the early twelfth century, has been preserved in more than forty manuscripts, and is also excerpted in two other Prague manuscripts with collections of weather forecasting tracts[12].

The second relevant text is titled *De pluviis* (fols 54v–56r). This is a treatise, usually known as *Liber imbrium*, by Hermann of Carinthia (c. 1100–1160), a translator from Arabic. The *Liber imbrium* is a brief overview of rules such as: "If the Sun is in Aquarius […] with the Moon […] opposite, and Venus resides in the same place, that hour will see the onset of rains[13]." The work is followed by a chapter introduced as *Ventorum cognitio* (fols 56r–57v), which is a passage from the tract *Jafar Indus*, translated in the first half of the twelfth century by Hugo of Santalla from an unidentified Arabic original[14]. It emphasizes the importance of the mutual positions

10 A description of the other content of the manuscript is available in the database www.manuscriptorium.com (last access 7 November 2019); cf. also J. Truhlář, *Catalogus codicum manu scriptorum Latinorum, qui in C. R. Bibliotheca publica atque Universitatis Pragensis asservantur*, 2 vols, Pragae, Regia societas scientiarum Bohemica, 1905–1906, I, p. 167–169; L. Thorndike, "Some Little Known Astronomical and Mathematical Manuscripts", in *Osiris*, 8 (1948), p. 41–72 (in particular p. 54–59). Based on the note *Liber Sigismundi de Gradecz Regine*, Lynn Thorndike identified the owner of the codex as Sigmund of St. Mähren, Hungary (Thorndike, "Some Little Known", p. 54). The codex might have belonged to Sigismund of Hradec Králové, who was recorded in the Dean's Book of the Faculty of Arts of the Prague University (*Liber decanorum Facultatis Philosophicae Universitatis Pragensis, ab anno Christi 1367 usque ad annum 1585*, pars II, eds. A. Dittrich, A. Spirk, Pragae, Typis Joan. Nep. Gerzabek, 1832, p. 16–17) in 1442, as a bachelor of arts, and who is known as the man who copied one of the works of Christian of Prachatice in Jindřichův Hradec in 1432; cf. P. Spunar, *Repertorium auctorum Bohemorum provectum idearum post Universitatem Pragensem conditam illustrans*, 2 vols (I – Wrocław, Ossolineum, 1985; II – Warszawa / Praga, IHN PAN, 1995), I, no. 312.

11 MS Prague, NK ČR, III C 2, fol. 51r: "Mars […] si fuerit in singno aereo, significat paucitatem pluviarum, […] fulmina."

12 MS Prague, NK ČR, I G 6, fols 261v–269r, and MS Prague, NK ČR, VI F 7, fols 132r–135v.

13 Hermannus Dalmata, *Liber imbrium* (Herman of Carinthia, *The Liber imbrium, The Fatidica and the De indagatione Cordis*, ed. S. Low-Beer, New York, Diss. University of New York, 1979), p. 114–124 (in particular p. 114): "Sole etiam in Aquario, Luna illi applicante aut in eius oppositione locata, et Venus ibidem commoretur, in ipsa hora pluvie aderunt."

14 Charles Burnett in the introduction to his edition of *Jafar Indus* mentions around 30 manuscripts with this text, cf. C. Burnett, "Lunar Astrology. The Varieties of Texts Using Lunar Mansions, with Emphasis on *Jafar Indus*", in N. Blancardi (ed.), *Il sole e la luna. The Sun and the Moon*, Firenze, SISMEL, 2004, p. 43–133 (in particular p. 86–87).

of the Sun and the Moon for weather forecasting[15]. A similar text composed of Hermann's *Liber imbrium* (titled here *De pluviis*) and the passage on winds from *Jafar Indus* is repeated in this manuscript in fols 184va–188ra. Hermann's *Liber imbrium* alone is included in MS Prague, NK ČR, VI F 7, and in MS Brno, Moravská zemská knihovna, A 64[16]. However, there is no indication that either of these manuscripts served as an exemplar for the other.

Another noteworthy text from this manuscript is titled *De aura* (fols 57v–58v), presenting a passage from Pliny's (23/4–79) encyclopedia *Naturalis historia*, which was most frequently copied anonymously in the Middle Ages under the title *De praesagiis tempestatum*. Surviving in copies from as early as the Carolingian era, this passage of Pliny's contains unique references to short-term predictions[17]. Pliny believed that the most important weather clues could be detected on celestial bodies such as the sun, the moon, and some of the fixed stars. Although these weather forecasts are again derived from the observation of heavenly bodies, their nature is meteorological, because the observers' attention was drawn not towards the movement of the bodies across the sky, but rather to their appearance as influenced by atmospheric conditions, such as the brightness or hue of the sun at dawn or dusk (e.g. a bright rising sun indicates a bright day, while a pale early sun implies a hailstorm)[18].

Observations of momentary atmospheric conditions are the subject of two further texts in this manuscript: the first is entitled *Notamenta pulchra de aura* and includes empirical signs inferred from the behaviour of animals (fol. 125rb); the second is *Paucitas ymbrium et redundantia et colores nubium* (fol. 188vb).

Apart from these two short passages, the other articles enable astrological forecasting. One of them is an overview of lunar mansions (fols 58v–59r). Lunar mansions refer to 28 or 27 sections of the orbit of the Moon. Since the lunar month has approximately 28 days, each mansion was considered a place where the Moon dwells for one day[19]. MS Prague, NK ČR, III C 2 includes a table of attributes for each mansion in the context of weather (moderate, dry, or wet) and various forms of transcribed Arabic names[20].

Next is an anonymous text of Arabic origin (fols 63ra–63vb), formerly attributed to Al-Kindi (Alkindus, c. 801–873), in modern literature frequently titled by its

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15 Cf. the commentary in Burnett, "Lunar Astrology", p. 65–75.

16 MS Prague, NK ČR, VI F 7, fols 155r–162v; MS Brno, Moravská zemská knihovna, A 64, fols 385v–387v.

17 Plinius Secundus, *Naturalis historia*, XVIII, §§ 340–365. Cf. B. S. Eastwood, *Ordering the Heavens. Roman Astronomy and Cosmology in the Carolingian Renaissance*, Leiden / Boston, Brill, 2007, p. 170 (and note 147), and Thorndike, "Some Little Known", p. 56.

18 Plinius Secundus, *Naturalis historia*, XVIII, § 343. Last but not least, weather could according to Pliny also be predicted on the basis of the appearance of fire set up by men (*terreni ignes*), namely from the hue of the flames or the sounds of the fire. The appearance of the ashes in a fire pit, for instance, could be used to predict the onset of wind; see Plinius Secundus, *Naturalis historia*, XVIII, § 358.

19 For a useful overview of this field cf. S. Ackermann, "The Path of the Moon Engraved. Lunar Mansions on European and Islamic Scientific Instruments", in Blancardi (ed.), *Il sole e la luna. The Sun and the Moon*, p. 135–164 (in particular p. 135–149).

20 MS Prague, NK ČR, III C 2, fol. 59r. Cf. B. Kocánová, "Latein als Sprache der Schriften über Wettervorhersage", in *Archivum Latinitatis Medii Aevi*, 71 (2013), p. 237–248 (in particular p. 243).

incipit *Saturnus in Ariete*[21], in this manuscript identified with the wording *de pluviis* in its explicit. It contains a list of planets in relation to the zodiac and the Sun; the positions and movements of the celestial bodies were again believed to indicate specific influences on the weather and health[22].

A similar title, *Alkyndus de pluviis*, is in fol. 167r, but surprisingly, under this title there is an astrological text introduced by the words *Luminaria firmamenti* which has nothing to do with weather forecasting. The title was meant to refer to the text which immediately follows in fols 168vb–169vb, which is again the treatise *Saturnus in Ariete*. There are many copies of this Latin translation (identified in at least 46 manuscripts)[23], and excerpts from it also appear in another Bohemian manuscript, MS Prague, NK ČR, I G 6[24]. Finally, the title *De pluvia* is used for excerpts from the treatise *De mundo vel saeculo* (fols 117va–118rb) by Abraham ibn Ezra (Abenezra, c. 1092–1165), translated into Latin by Henry Bate in 1281[25]. The excerpts from the translation concern Al-Kindi's findings on the forecasting of rain and wind based on the conjunction of the Sun and the Moon, as well as other aspects. Excerpts from the same chapters (*De pluviis*, *De ventis* and *De terrae motu*), just a bit longer, are also included in MS Prague, NK ČR, VI F 7[26].

According to the Truhlář *Catalog*[27], fols 170r–198v should contain al-Farghani's (Alfraganus') *Liber differentiarum*, but a closer look reveals more texts: a) fols 184va–186va contain another copy of Hermann of Carinthia's *Liber imbrium* and *De ventorum cognitione* in a different hand; b) fol. 189ra *De aeris mutatione*[28]; c) fol. 189va *Apertio portarum*[29]; d) fol. 190v features the beginning of the text *De*

21 The text *Saturnus in Ariete* was published by Bos, Burnett, *Scientific Weather Forecasting*, p. 460–466. A matching Arabic text has not been found to date, and the question of authorship remains open.

22 E.g. the section on the planets in Aries (*Saturnus in Ariete*, p. 3–4, in Bos, Burnett, *Scientific Weather Forecasting*, p. 460) says: "Mars cum fuerit in Ariete sub radiis, serenum signat. […]. Venere existente in Ariete sub radiis, nichil erit venti."

23 The editors emphasize the substantial variations between the different copies of the text and insist that the published version should be regarded as an example, rather than an edition; cf. Bos, Burnett, *Scientific Weather Forecasting*, p. 457–459.

24 MS Prague, NK ČR, I G 6, fol. 257v.

25 For Latin translations of this work see R. Smithuis, "Abraham Ibn Ezra's Astrological Works in Hebrew and Latin: New Discoveries and Exhaustive Listing", in *Aleph: Historical Studies in Science and Judaism*, 6 (2006), p. 239–338 (in particular p. 248).

26 MS Prague, NK ČR, VI F 7, fols 128v–129r (cf. Rosińska, *Scientific Writings*, no. 560, p. 120).

27 Cf. Truhlář, *Catalogus codicum*, I, p. 169.

28 The text begins with the words "Iudicia de aeris minucione [!], et coniunccione Solis et Lune considera signum ascendens". It seems to be the *Iudicium particulare*, ascribed to Bartholomaeus de Parma according to TK 668 and Jenks, "Astrometeorology", no. 65. This short treatise is also included in MS Prague, NK ČR, I G 6, fols 260r–v, and in MS Cracow, BJ, 566, fols 112r–v, written partially in Prague at the end of the fourteenth century, partially c. 1459 (cf. M. Kowalczyk et al., *Catalogus codicum manuscriptorum Medii Aevi Latinorum qui in Bibliotheca Jagellonica Cracoviae asservantur*, vol. 4, Kraków / Warszawa / Wrocław / Gdańsk , Ossolineum, 1980, p. 9–19).

29 Cf. the edition of *Apertio portarum* in Bos, Burnett, *Scientific Weather Forecasting*, App. I, p. 386–389. On the concept of the "opening of the doors" cf. C. Burnett, "Weather Forecasting, Lunar Mansions And a Disputed Attribution: The *Tractatus pluviarum et aeris mutationis and Epitome totius astrologiae* of 'Iohannes Hispalensis'", in W. Raven, A. Akasoy (eds.), *Islamic Thought in the Middle Ages: Studies in Text, Transmission and Translation, in Honour of Hans Daiber*, Leiden / Boston, Brill, 2008, p. 219–265 (in particular p. 231–233).

cometis. This latter text is in fact an excerpt from the astrological summa *Compilatio de astrorum scientia*, written by the author known as Leopold of Austria around the year 1271. In the first chapter of the summa, Leopold lists nine comets and includes information about the changes in weather that can be deduced from their transition through the individual zodiac signs. The next chapter on weather forecasting follows in the manuscript from fol. 191vb, and is titled *De mutatione aeris* (191vb–195rb)[30]. This chapter focuses on astrological predictions, among others it discusses optical phenomena that might indicate changes in the sublunary region, e.g. a greenish moon (*luna viridis*) or halo[31]. Leopold concludes his section with other forecasting indicators: the occurrence of thunder in individual zodiac signs (or months), the day of the week on the 1st of January, the weather on New Year's Eve, or the occurrence of thunder in specific phases of the Moon (*luna tertia* and *luna quarta*)[32].

As we have seen, MS Prague, NK ČR, III C 2 reveals the great variety of traditions reflected in medieval weather forecasting. Similar comments can be made about the next relevant codex – MS Prague, NK ČR, VI F 7[33]. This manuscript was written at the University of Cracow and probably taken to the Czech Lands by 1523 at the latest[34], importing – together with a treatise *Ars metrificandi a Martino Rege* (Martin Król of Żurawica) and with some astronomical, mathematical, and medical treatises – several copies of texts on weather forecasting:

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30 This chapter on weather forecasting stands on its own in several manuscripts in Oxford, Erfurt, Wolfenbüttel and Cracow; cf. Rosińska, *Scientific Writings*, no. 532; Jenks, "Astrometeorology", no. 38; Hellmann, "Die Wettervorhersage", p. 178. Joëlle Ducos discusses this passage in an independent study; see J. Ducos, "Astrométéorologie et vulgarisation, le livre VI de Li compilacion de le science des estoilles de Léopold d'Autriche", in D. James-Raoul, O. Soutet (eds.), *Par les mots et par les textes, mélanges en l'honneur de C. Thomasset*, Paris, PUPS, 2005, p. 239–256.

31 MS Prague, NK ČR, III C 2, fols 192vb–193ra. The passage, including the mention of the greenish moon, draws on the Latin translation of Ptolemy's treatise *Tetrabiblos*.

32 MS Prague, NK ČR, III C 2, fols 195ra–195rb. While both the language and the content of these prognostic texts bordered on the popular or the educational genre, and although the texts stand mostly independent, they were also frequently adopted by authors of astrological summas. Cf. e. g. D. Juste, H. Chiu, "The *De tonitruis* Attributed to Bede: An Early Medieval Treatise on Divination by Thunder Translated from Irish", in *Traditio*, 68 (2013), p. 97–124, and in the Czech context B. Kocánová, "*Prenosticaciones temporum* ve sborníku Matouše Berana (Národní knihovna I F 35) [*Prenosticaciones temporum* in the Miscellany of Mattheus Beran (MS I F 35 of the National Library)]", in M. Dragoun, L. Doležalová, A. Ebersonová (eds.), *Ubi est finis huius libri deus scit. Středověká knihovna augustiniánských kanovníků v Roudnici nad Labem*, Praha, Scriptorium, 2015, p. 165–176.

33 Cf. Truhlář, *Catalogus codicum*, I, p. 461–462; Thorndike, "Some Little Known", p. 59; Bos, Burnett, *Scientific Weather Forecasting*, p. 77–78.

34 Before its transfer to the National Library in Prague, the manuscript was stored in the Rosenberg Library, to which it was moved from the dissolved Třeboň monastery. The first texts were written by John of New Town (Johannes de Nowe Myasto) at Cracow University in 1425. The second part of the manuscript is more relevant for our topic. It was written by Andreas Ruczel (Andrzej Ruczel z Kościana) at Cracow University between 1446 and 1448. Andreas Ruczel received his master's degree in 1449, and wrote several astronomic and philosophical treatises, as well as commentaries on Aristotle's work *De anima*; cf. Bos, Burnett, *Scientific Weather Forecasting*, p. 78, J. Zathey, "Biblioteka Jagiellońska w latach 1364–1492", in J. Zathey, A. Lewicka-Kaminska, L. Hajdukiewicz (eds.), *Historia Biblioteki Jagiellońskiej 1 (1364–1775)*, Kraków, Universytet Jagielloński, 1966, p. 43–86.

fols 101r–102r	*Hali De dispositione aeris* [= (ps.-)Robertus Linconiensis, *De impressionibus aeris* (TK 57)]
fols 102r–v	*Stellae fixae aerem turbantes*
fol. 103r	[an overview of 28 lunar mansions]
fols 103v–112r	*Tractatus de dispositione aeris magistri Guidonis* [= a largely modified excerpt from Bonatti's astrological summa (TK 907)]
fols 113r–122v	*Alkindi dicta magistri* [Alkindus, *De mutatione temporum* (TK 1364); almost complete]
fols 123r–v	[a text resembling the treatises *Apertio portarum*, with parts pertinent to Alkindus, *De mutatione temporum*, chapter 8,101–107 and 8,145]
fols 124r–v	*De revolutione mundi et domino anni* [Messahala, *De revolucionibus mundi*; excerpts]
fols 125r–128r	*Autoritates* [= excerpts from various works]
fols 128v–129r	*De pluviis* [= Abenezra, *De mundo vel saeculo*: chapters *De pluviis*, *De ventis* and *De terrae motu* (TK 419)]
fols 132r–135v	*Albumazar Florum* [excerpts from Albumasar's work *Flores* (TK 1013)]
fols 135v–136v	*Regulae de pluviis* [= Hermannus Dalmata, *Liber imbrium*; excerpts (TK 1465)]
fols 155r–162v	[excerpt from the work *Quadripartitus* by (ps.-) Iohannes Hispalensis (the Introduction and Book I, including the passage on weather forecasting)]
fol. 179r	[astrological notes; the text continues on the inside back cover][35]

All the weather forecasting tracts in MS Prague, NK ČR, VI F 7 are closely related to the astrological tradition. This also applies to the copy of the treatise *De impressionibus aeris seu de prognosticatione* ascribed to the English scholar Robert Grosseteste (before 1170–1253), titled in this manuscript *Hali de dispositione aeris* (fols 101r–102r)[36]. Compared to the Arabic texts in which the forecasting concerns specific moments when the particular positions of celestial bodies occur (great conjunctions, the beginning of the year, etc.), the method explained in the treatise *De impressionibus aeris seu de prognosticatione* is applicable to any day of the year; it does not use any difficult techniques of eastern origin, such as lunar mansions or *apertio portarum*[37]. The sim-

35 Cf. Bos, Burnett, *Scientific Weather Forecasting*, p. 77.

36 *De impressionibus aeris seu de prognosticatione*, in L. Baur (ed.), *Die philosophischen Werke des Robert Grosseteste, Bischofs von Lincoln*, Münster i. W., Aschendorffsche Verlagsbuchhandlung, 1912, p. 41–51. For more detail see Jenks, "Astrometeorology", p. 190, and Hellmann, "Die Wettervorhersage", p. 175–176. There is no certainty about the authorship of this text, cf. C. Panti, *Moti, virtù e motori celesti nella cosmologia di Roberto Grossatesta. Studio ed edizione dei trattati De sphera, De cometis, De motu supercelestium*, Firenze, SISMEL-Edizioni del Galluzzo, 2001, p. 45–46.

37 To make a forecast, we need to determine the positions of all the planets in the astrological tables and identify the most influential one. The influence of the planet is determined by its relation to the zodiac sign it is in. The forecasting itself consists of a simple assessment of the impact of the planetary positions within the zodiac. Cf. Jenks, "Astrometeorology", p. 190.

plicity of the process is also striking in comparison with later compilations, which aspired to embrace as many forecasting methods as possible[38]. This might be the reason for its notable diffusion, especially in the fourteenth century[39]. The most popular part includes three examples of forecasts for a particular day, month, and season (15 April 1249, July 1249, and the autumn of 1255)[40].

In most manuscripts, the first example is followed by the remark *quod et factum est*, to indicate the credibility of the forecast. This remark is also included in the English manuscripts that were used by the editor of this text, Ludwig Baur. Finding the same remark in the thirteenth/fourteenth century Oxford compilation, Baur ruled out the possibility that the remark might be a later note, and thus he included it in his edition, and used it to date the text to between April and June 1249[41].

I believe the remark *quod et factum est* could in fact be a later note, as it is missing not just in the fourteenth century Vienna copy but also in several other manuscripts that Baur did not see. The note is missing in the fifteenth century MS Prague, NK ČR, VI F 7, and in other manuscripts from Cracow[42]. It seems unlikely that the note would have been omitted by later scribes. Ezio Franceschini and James McEvoy also pointed out the implausibility of Grosseteste confirming the reliability of his astrological method by referring to weather experienced before his writing[43]. It could have been added, probably shortly after the text was written, and later been adopted by the English manuscripts and other copies[44].

While the aforementioned weather forecasting manual was widely distributed, the manuscript also contains much rarer treatises. One of them is the text *Stellae fixae aerem turbantes* (fols 102r–v). This is in fact a list of the stars whose ascents and descents are associated with changes in the weather. The direct source of the work is not known, but it is presumed to be a fourteenth century Latin translation of a Greek original[45]. As far as we know, it can be found in just three Central European manuscripts from the fifteenth century; one kept in Prague, one in Katowice, and one in Cracow[46].

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38 Cf. e. g. the summas by John Ashenden or Firminus de Bellavalle.

39 There are at least two copies from the thirteenth century, sixteen from the fourteenth century and ten from the fifteenth century. Cf. Jenks, "Astrometeorology", nos. 3, 7, 27, Rosińska, *Scientific Writings*, no. 95.

40 (Ps.-)Robertus Linconiensis, *De impress. aeris*, p. 49, l. 21–33.

41 (Ps.-)Robertus Linconiensis, *De impress. aeris*, p. 50, l. 18; cf. Baur, *Die philosophischen Werke*, p. 74*.

42 The reassuring note is missing in MS Cracow, BJ, 566 (fols 43r–45r; c. 1439); MS Cracow, BJ, 573 (pag. 372–376; c. 1457); MS Cracow, BJ, 1843 (fols 247v–249v; c. 1453); MS Cracow, BJ, 1915 (fols 62v–66v; XV[1]).

43 See E. Franceschini, "Sulla presunta datazione del De impressionibus aeris di Roberto Grossatesta", in *Rivista di filosofia neo-scolastica*, 44 (1952), p. 22–23, and J. McEvoy, "The Chronology of Robert Grosseteste's Writings on Nature and Natural Philosophy", in *Speculum*, 58 (1983), p. 614–655 (in particular p. 621–622).

44 One of the Cracow manuscripts (MS Cracow, BJ, 1843, fol. 270v) contains a confirmation note in slightly different wording: "Quod et utique in veritate ita factum fuit." The text *De impressionibus aeris* is included twice in the manuscript, each copy in a different hand. One version is in fols 247v–249v (without the reassuring note), the other in fols 267v–271r (with the note).

45 Cf. Burnett, "Late Antique and Medieval Latin Translations", p. 341–342.

46 Charles Burnett edited this text in "Late Antique and Medieval Latin Translations", p. 354–359, using Prague and Katowice copies. The Cracow manuscript, MS Cracow, BJ, 1843 (c. 1453) contains two versions of *Stellae fixae*, one in fols 250r–251r and one in fols 273v–274r.

Another rather infrequent text in the manuscript has the incipit *Ne te in astrorum iudiciis*, which is most likely a considerably modified excerpt from Bonatti's astrological summa *Liber introductorius ad iudicia stellarum* (fols 103v–112r).

A third medieval Bohemian collection of weather forecasting texts is MS Prague, NK ČR, I G 6, from the second half of the fifteenth century. Although copied by several scribes, the manuscript seems to be a compilation organized and expanded by a single person, the Augustinian canon and Prague University student Kříž of Telč (Crux de Telcz, 1434–1504)[47]. The treatises in the codex are mostly of a computistic and astronomical nature. Eight texts deal with weather forecasting, including some that are not to be found in any other medieval manuscript from the Czech Lands:

fol. 176v	*Praenostications temporum per tonitrua signorum*
fols 244r–246bis r	*Excerpta de tractatu Perscrutatoris* [= Robertus Perscrutator, *De impressionibus aeris sive de mirabilibus elementorum*; excerpts]
fol. 247r–248v	[Albohazen Haly, *De iudiciis astrorum*; excerpt]
fol. 248v–256v	[Firminus Bellavallensis, *De mutatione aeris*; excerpts]
fol. 257v	*De pluviis* [= ps.-Alkindus, *Saturnus in Ariete* (TK 1383); excerpt]
fols 259r–260r	*Linconiensis Tractatus de planetis et praenosticatione tempestatis* [= (ps.-)Robertus Linconiensis, *De impressionibus aeris*; excerpt]
fol. 260r–v	*De mutatione aeris particulari* [= Bartholomaeus Parmensis?, *Iudicium particulare* (TK 252,668)]
fols 261v–269r	*Ex opere Florum Albumasaris* [Albumasar, *Flores*; excerpt]

We have already encountered some of these texts in the previous two manuscripts: MS Prague, NK ČR, III C 2, contains (twice) the text *Saturnus in Ariete*, the short treatise *Iudicium particulare* ascribed to Bartholomaeus of Parma, and extracts from Albumazar's *Flores*; MS Prague, NK ČR, VI F 7, includes extracts from *Flores* as well, and the text *De impressionibus aeris*, whose author was considered to be Robert Grosseteste. However, in the comparison of the wordings of the texts in question there is no indication that these manuscripts were interdependent.

All the weather forecasting texts in the codex I G 6 are characterized by a specific manner of selection and excerption, with an emphasis on data and avoiding general theories. For example, the codex features notes excerpted from the work *De impressionibus aeris sive de mirabilibus elementorum* by the natural philosopher

47 Kříž studied at Prague University (enrolling in the King Wenceslas College in 1459). From 1478 he lived and worked in the Třeboň monastery. He kept copying until 1495. Cf. the collection L. Doležalová, M. Dragoun (eds.), *Kříž z Telče (1434–1504): písař, sběratel a autor* [Kříž of Telč (1434–1504): The Writer, the Collector and the Author], Praha, Scriptorium, 2020; from the older literature cf. J. Kadlec, "Oldřich Kříž z Telče [Oldřich Kříž of Telč]", in *Listy filologické*, 79 (1956), p. 91–102 (in particular p. 91–92), and P. Spunar, "Vývoj autografu Oldřicha Kříže z Telče [Development of the Autograph of Oldřich Kříž of Telč]", in *Listy filologické*, 81 (1985), p. 220–225.

Robert Perscrutator (fl. 1313–1325)[48]. The excerpt omits Perscrutator's extensive deliberation over the general principles of mixing different qualities of the elements which result in the forming of atmospheric phenomena. In fact, all the supplementary information and notes are left out, making the final text less than one half the length of the original. The scribe or his exemplar left out for example the chapter *De motu maris*, dealing with the motions of the sea and ocean, which in the context of Central Europe might naturally have been considered less relevant. This version of Perscrutator's text ends abruptly, without the final passage in which Perscrutator writes that no one should add or delete something from his tract, and that if someone despises it, then he should rather adhere to his own treatise[49].

In addition, the manuscript includes an anonymous text with the incipit *Diversitas aeris in temporibus caloris* (fols 247r–248v). It turns out that this is an extract from the work *De iudiciis astrorum* containing the chapters on weather predicted from eclipses, yearly revolutions and so on, written by the Arab astrologer and astronomer of the late tenth and early eleventh century, Haly Abenragel (Albohazen).

Particular emphasis on facts is also apparent in other texts in Kříž's codex. The *Excerpta de Firmino* consist of selected short passages, uniquely among Czech manuscripts, from the treatise *De mutatione aeris*, written originally in France in 1338 by Firminus de Bellavalle[50]. These passages cover the nature of different parts of the sky, predictions of changes in weather based for example on conjunctions, eclipses, and the entry of the sun into solstices or equinoxes. The last chapter, on non-astrological, short term meteorological predictions based on weather signs such as the croaking of frogs, is entirely omitted.

Last but not least, the copy of the treatise *De impressionibus aeris* ascribed by the rubrics to Robert Grosseteste leaves out the theoretical explanation of general principles and terms, beginning only with the demonstration of creating a forecast for a specific date[51].

Obviously the copyists (or the scribes of their exemplars) were – at least in the context of weather forecasting – selecting only particular passages from longer works, avoiding general data. One text on weather forecasting is not shortened at all, a paragraph *Praenostications temporum per tonitrua signorum* (fol. 176v) on the prediction of sublunar events based on the occurrence of thunder and on the position of the sun in zodiac signs (i.e. basically the months of the year)[52]. This is not shortened because there is nothing to leave out. That really nothing was left out here, can be seen when it is compared to the exemplar from which Kříž copied it.

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48 MS Prague, NK ČR, I G 6, fols 244r–246bis r. The whole of Perscrutator's work is extant e.g. in MS Berlin, Staatsbibliothek zu Berlin, MS Lat. fol. 192 (fifteenth century), fols 121r–127r. For more information on Perscrutator's work cf. L. Thorndike, *A History of Magic and Experimental Science*, 8 vols, New York / London, Columbia University Press, 1923–1958, III, p. 104–118.

49 Cf. MS Berlin, Staatsbibliothek zu Berlin, MS Lat. fol. 192, fol. 127rb.

50 MS Prague, NK ČR, I G 6, fols 248v–256v. For more information on Firminus' work cf. Thorndike, *A History of Magic and Experimental Science*, III, p. 268–280.

51 MS Prague, NK ČR, I G 6, fols 259r–260r.

52 For example: "If it thunders in Gemini, there will be a lot of rain and hailstones."

The direct model was the miscellany written by Matouš Beran (Mattheus Beran, d. 1462), an Augustinian canon at Roudnice nad Labem[53].

Meteorological phenomena are also mentioned in the codex in the astrological prediction developed for Ulrich of Rosenberg for the year 1455[54]. The last part of this prediction contains a prognosis of meteorological and other phenomena caused by the expected eclipse[55]. It is an autograph attributed to Martin of Lenčice (Martinus de Lancicia), an influential physician and the chancellor of Prague University.

There are another three manuscripts with texts on weather forecasting linked with Kříž of Telč, one of the authors of this codex. The first is MS Prague, NK ČR, XIII C 17 with short notes on weather forecasting accompanied by a few of Kříž's glosses (fols 1r–v) and with a text beginning "Si Sol fuerit in emisperio australi" (an extract of Hermann of Carinthia *Liber imbrium*), continuing with *Tractatus pluviarum* ascribed to John of Seville and with another unidentified text (fols 157r–v). The same composite work is in the manuscript written in Prague between 1401 and 1404, today kept in the Lawrence J. Schoenberg Collection under shelfmark LJS 174, fols 105r–v. The second Kříž codex is MS Třeboň, Státní oblastní archiv, A 17 from the second half of fifteenth century, with a text consisting of simple rules which enabled forecasts based on the day of the week of the January kalends/Christmas Day (fol. 115v)[56], and weather prognosis fragments (fols 2r and 405r–v). Last is MS Třeboň, Státní oblastní archiv, A 4 with proverbs on fol. 141r[57]. Kříž also copied John Versor's commentary on Aristotle's *Meteorology*, included in the manuscript MS Prague, NK ČR, I E 38[58]. This could lead us to believe that he was particularly interested in weather; in fact, he copied (or ordered the copying of) a whole range of theological texts, as well as treatises on medicine, alchemy, astronomy, philosophy, liturgical and legal rules, literary texts, dictionaries, and historiographic works[59].

The Augustinian order is also associated with another manuscript, known as MS Brno, Moravská zemská knihovna, A 64, created in the year 1477 and kept in the Augustinian Library in Old Brno. It is an astronomical compilation containing a *Liber de pluviis* (fols 385v–387v), which is actually Hermann of Carin-

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53 MS Prague, NK ČR, I F 35, fol. 23v; I thank doc. Lucie Doležalová for drawing my attention to this codex. Kříž definitely knew this manuscript, as confirmed for example by a few notes written by Kříž in the margins of some other texts. Cf. Kocánová, "*Prenosticaciones temporum* ve sborníku Matouše Berana (Národní knihovna I F 35)", p. 166–172.

54 MS Prague, NK ČR, I G 6, fols 106r–109v.

55 MS Prague, NK ČR, I G 6, fols 109r–v.

56 Cf. J. Weber, J. Tříška, P. Spunar, *Catalogus codicum manu scriptorum Trzebonae Crumloviique asservatorum*, Praha, Nakl. Československé akademie věd, 1958, p. 166.

57 Cf. Weber, Tříška, Spunar, *Catalogus codicum*, p. 39 and 53.

58 MS Prague, NK ČR, I E 38, fols 228r–265r. Cf. F. Šmahel, "Paris und Prag um 1450. Johannes Versor und seine böhmischen Schüler", in F. Šmahel, *Die Prager Universität im Mittelalter / The Charles University in the Middle Ages. Gesammelte Aufsätze / Selected Studies*, Leiden / Boston 2007, p. 444–454 and 460–462.

59 Cf. Kadlec, "Oldřich Kříž z Telče", p. 98–99, and the introduction in Doležalová, Dragoun (eds.), *Kříž z Telče (1434–1504)*.

thia's *Liber imbrium*[60]. Unfortunately, the date of origin and its location in the Augustinian monastery are the only things we know about the provenance of the manuscript.

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The three main manuscripts described above contain 35 texts, or rather 25 different texts (excluding repetitions), dealing with weather forecasting. In addition, several isolated items can also be found in other Czech manuscripts, e.g. there are some fifteen versions of a short set of rules for forecasting from thunder or the beginning of the year[61].

Although it is obvious that weather forecasting was a minor field of interest, compared to related branches such as astronomy, computistics, medicine, or meteorology, there was a palpable interest in the theory of weather forecasting. Still, the question remains: Can we draw a direct link between this interest and Prague University – other than just the fact that the texts were copied by people who had studied there?

There is no explicit or implicit evidence that the aforesaid texts were studied at the university. None of the texts on weather forecasting has been recognized in any of the medieval college bibliographic catalogs; just one of them is glossed; and some of them are relatively thoroughly written.

Such evidence is available for texts on meteorology, e.g. in the commentaries on Aristotle's *Meteorology* written and glossed by the masters active in Prague[62]. Their authors paid only marginal attention to weather signs, and only when the signs could be related to the theory of exhalations. That does not necessarily mean that they disrespected forecasting from celestial bodies. A fourteenth century commentary ascribed to John Duns Scotus addressed some of the signs using the theory of exhalations (e.g. explaining some of the rain indicators, such as the sound and movement of leaves on trees in calm weather, in accordance with contemporary meteorological ideas about the presence of a large volume of vapours in the air,

60 Cf. V. Dokoupil, *Soupis rukopisů knihovny augustiniánů na Starém Brně* [Catalog of Manuscripts of Augustinians in Old Brno], Praha 1957, no. 64, p. 66–69. For *Liber imbrium* see note 13 above.

61 Cf. an overview in Kocánová, "*Prenosticaciones temporum* ve sborníku Matouše Berana (Národní knihovna I F 35)", p. 165–176. The texts with the rules which enabled forecasts based on the day of the week of the January kalends or Christmas Day survived in hundreds of copies in various languages; cf. L. Ditommaso, "Pseudepigrapha Notes III:4, Old Testament Pseudepigrapha in the Yale University Manuscript Collection", in *Journal for the Study of the Pseudepigrapha*, 20 (2010), p. 3–80 (in particular p. 20–33). Likewise, the thunder prognostics texts were translated into vernacular languages and were often included in manuscripts of monastic origin.

62 See e.g. the marginal notes by John of Borotín commenting on Aristotle's *Meteorology* in MS Prague, NK ČR, VII E 9, fols 107r–174v. The second redaction of Nicole Oresme's *Questions on Meteorology* probably also originated from Prague; cf. A. Panzica, *Nicole Oresme, Questiones in Meteorologica secundum ultimam lecturam, recensio parisiensis. Study of the Manuscript Tradition and Critical Edition of Books I-II.10* (forthcoming). While meteorological commentaries are usually put together with commentaries on other works by Aristotle (cf. e.g. MS Prague, NK ČR, I E 38, from 1459), weather forecasting in Bohemian manuscripts is always a topic attached to astrological or astronomic treatises.

which rise and form rain). For further study of rain signs, which are also the effective causes of rains, such as constellations, the commentary refers to the *astrologia de iudiciis*[63]. This shows that meteorologists recognised astrological weather forecasting, but did not include it in meteorology.

Although meteorology was a compulsory subject at the Faculty of Arts of Prague University, weather forecasting stood outside the main field of interest in the Czech Lands. It was clearly linked to astrology and if studied, then by people interested in astrology and astronomy, or medicine. These fields of study were particularly popular in the monastic environment.

I believe that the texts on weather forecasting failed to gain greater recognition in the Czech Lands because astrological studies were not sufficiently developed there. Prague University was the first university in Central Europe and its development during its early decades seemed very promising[64]. Astronomy was thriving thanks to Christian of Prachatice (1370–1439) and John Šindel (c. 1375–1456), and medicine found a talented personality in Sigismund Albík of Uničov (Sigismundus Albicus de Uniczow, c. 1358–1427). This hopeful development, however, was considerably disturbed by the effects of the Kuttenberg Decree (1409), which resulted in the departure of many professors and students. Later, during the Hussite movement, and after the university was abandoned by Albík and Šindel, the Faculty of Medicine was closed down altogether. The Hussite wars also severely hindered inter-university contacts. Consequently, astrology and astronomy ended up at the margins of university interests. The study of celestial bodies flourished especially at the universities in Cracow and Vienna, gradually overshadowing the former fame of Prague. The university partly recovered in the 1430s and 1440s during the struggle for the new opening of the Faculty of Medicine[65], but it never reached its former standard and Catholic students preferred to study abroad. Those who took an interest in astrology and mathematics usually headed to Cracow or Vienna[66].

I have mentioned before that some of the relevant manuscripts are associated with a monastic environment, especially the Augustinian monasteries in Třeboň and Brno. The interest among monks in these fields of study is documented by Stuart Jenks even in codices of non-Czech origin[67]. He mentions Benedictine

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63 Ps.-Scotus, *Quaestiones meteorologicae*, ed. L. Wadding, in *Joannis Duns Scoti Opera omnia*, vol. 4, Paris, Apud Ludovicum Vivés, 1891, p. 1–263, 24,1 (p. 117).

64 The promise of the Prague University environment is evidenced by the works of Claretus' group. These include short passages on weather forecasting, too, e.g. based on thunder. However, we cannot be certain that these texts originated directly at the university, as Claretus' activities were supported by the court as well.

65 Cf. M. Říhová et al. (eds.), *Kapitoly z dějin lékařské fakulty* [Chapters of the History of Medical Faculty], Praha, Karolinum, 2005, p. 66–67.

66 Cf. also M. Říhová, "K obsahu studia na pražské lékařské fakultě v době působení Albíka z Uničova [Content of the Studies at the Prague Medical Faculty in the Times of Sigismund Albík]", in J. Pešek, M. Svatoš (eds.), *Škola a město. Sborník příspěvků z konference "Škola a město" konané ve dnech 5.–6. října 1991*, Praha, Karolinum, 1993, p. 101–102.

67 Jenks, "Astrometeorology", p. 185–210.

communities in particular, and suggests that their interest was of an intellectual, rather than a practical, nature. Such can also be said about the prognostic texts that identify thunder and the day of the week of the January kalends or Christmas Day as prophetic signs revealing the future, including weather; despite the user-friendly form of these texts, there is no evidence of whether they were really used to forecast weather[68]. On the other hand, the particular emphasis on facts and rules apparent in the texts in Kříž's MS Prague, NK ČR, I G 6, and its purely astrological character, give rise to the impression that the reason the texts were copied and abbreviated in this specific way is that they were meant as an aid for writing astrological weather prognoses. Such a prognosis, which could have been written on the basis of such rules, might be found in a text from MS Třeboň, Státní oblastní archiv, A 17 (also collected by Kříž), which contains weather predictions for half a year on the basis of lunar mansions and different astrological principles mentioned in the Kříž codex (unfortunately just three folios of the prognosis are extant, covering only some months)[69]. These prognoses of meteorological conditions were habitually parts of annual predictions (the so-called *iudicia anni*), which offered information about the astronomical phenomena, disasters, economic and social trends, religious events, and military and political affairs to be expected in the respective year. *Iudicia anni* were usually composed by university professors of astronomy or astrology, probably also at Prague University. Except for the prognosis from an expected eclipse written by Martin of Lenčice for the year 1455 mentioned above[70], there are no other known medieval forecasts from the Czech Lands[71]. Therefore, it is not possible to ascertain with certainty, to what extent these predictions also included weather forecasts. A different situation occurs in the sixteenth century, when interest in weather and its forecasting becomes evident from the number of surviving weather diaries. Compared to Cracow and German universities there is a certain delay, but the number of Czech authors of systematic weather records from the sixteenth century is non-negligible. The connection between these first weather records and the effort to test and improve the reliability of astrological weather forecasts is obvious[72].

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68 Cf. M. Cesario, "Knowledge of the weather in the Middle Ages: *Libellus de disposicione totius anni futuri*", in M. Cesario, H. Magennis (eds.), *Aspects of knowledge. Preserving and reinventing traditions of learning in the Middle Ages*, Manchester, Manchester University Press, 2018, p. 53–78 (in particular p. 63–66).

69 MS Třeboň, Státní oblastní archiv, A 17, fols 2r and 405r–v.

70 Cf. notes 54–55.

71 Latin astrological annual predictions from the fifteenth century (between 1405–1484) are the subject of an unpublished thesis by A. Tur, *Hora introitus solis in Arietem, Les prédictions astrologiques annuelles latines dans l'Europe du XVe siècle (1405–1484)*, Orléans, Diss. Université d'Orléans, 2018.

72 See C. Pfister et al., "Daily Weather Observations in Sixteenth-Century Europe", in *Climatic Change*, 43 (1999), p. 111–150, and for the Czech Lands especially R. Brázdil, O. Kotyza, *Historie počasí a podnebí v českých zemích II: Nejstarší denní pozorování počasí v Českých zemích – History of Weather and Climate in the Czech Lands II: The Earliest Daily Observations of the Weather in the Czech Lands*, Brno, Masarykova univerzita, 1996, and R. Brázdil, O. Kotyza, *History of Weather and Climate in the Czech Lands III: Daily Weather Records in the Czech Lands in the Sixteenth Century II*, Brno, Masaryk University, 1999.

As we have seen in the preceding overview, the Czech medieval sources addressed many available methods of forecasting known from the Greek and Arabic traditions and other areas of medieval culture. Weather forecasting was not regarded as a field of science in its own right, but rather as a collection of knowledge from various traditions. It was associated with astrology and astronomy, and marginally also with meteorology and prophecy.

Many different phenomena were believed to be useful as indicators of weather changes. The basic idea was that the prime mover sets the celestial bodies in motion, which subsequently triggers changes in the four elements that form the sublunary sphere, including meteorological phenomena. Some authors of astrological texts also mentioned the possibility of short-term forecasting. Although this short-term, and shall we say empirical, forecasting does not use any astrological principles, there is no contradiction: The two different methods do not compete, but rather complement each other. The individual traditions were combined not only in the individual codices, but also in the individual texts. Authors tried to cover all of the available methods, as if they could not find any method, they would deem sufficiently reliable.

LUKÁŠ LIČKA

Studying and Discussing Optics at the Prague Faculty of Arts: Optical Topics and Authorities in Prague Quodlibets and John of Borotín's *Quaestio* on Extramission*

Introduction

This paper aims to consider the extent to which the medieval optical tradition (*perspectiva*), its texts, issues and terminology were known to, assimilated by and further investigated by arts masters at Prague University in the late fourteenth and early fifteenth centuries. At first sight, the prospects of such an endeavor appear rather dim. If the numbers of the manuscripts including optical texts extant in Prague libraries are considered, Prague seems anything but a center of optical studies. Nowadays, there are only two copies of Roger Bacon's *Perspectiva* (MS Prague, NK ČR, VIII E 27; MS Prague, NK ČR, VIII G 19) and three copies of John Peckham's textbook *Perspectiva communis* (MS Prague, KMK, L 29; MS Prague, KMK, L 41; MS Prague, NK ČR, adlig. 44 E 8), i.e. rather elementary renderings of optical science; while the scientifically more rigorous Alhacen, Witelo or Euclid are entirely lacking[1]. The situation was probably no better in medieval times – according to the catalogs of the late medieval libraries of Prague University colleges, recently published by F. Šma-

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1 See D. C. Lindberg, *A Catalogue of Medieval and Renaissance Optical Manuscripts*, Toronto, Pontifical Institute of Mediaeval Studies, 1975, *passim*. Codices kept in Prague Metropolitan Chapter Library are described by A. Patera, A. Podlaha, *Soupis rukopisů knihovny metropolitní kapitoly pražské* [Catalog of Manuscripts of the Prague Metropolitan Chapter Library], 2 vols, Pragae, Česká akademie věd a umění, 1910–1922, codices in the National Library by J. Truhlář, *Catalogus codicum manu scriptorum latinorum qui in C. R. Bibliotheca publica atque Universitatis Pragensis asservantur*, 2 vols, Praha, Regiae Societatis Scientiarum Bohemicae, 1905–1906.

There is also a fragment on pinhole images copied from Peckham's *Perspectiva communis* (I. prop. 5) in MS Prague, NK ČR, VIII G 19, fol. 41r. See the new description of the codex MS Prague, NK ČR, VIII G 19 prepared by D. A. Di Liscia and S. Rommevaux-Tani in the forthcoming Brill volume (D. A. Di Liscia, E. D. Sylla (eds.), *Quantifying Aristotle. The Impact, Spread and Decline of the Calculatores Tradition*).

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hel and Z. Silagiová, there were only three copies of optical textbooks in these libraries (one of Bacon and two of Peckham)[2]. Further, no commentary (or even glosses) to any optical text of Prague origin has been discovered to date[3].

The small number of Prague optical manuscripts is particularly notable if manuscripts from the same period kept in other Central European university centers (mainly Cracow and Vienna) are considered: there are eight extant copies of Peckham's *Perspectiva communis* from the fourteenth to fifteenth centuries in Cracow and seven copies in Vienna[4]. Additionally, several commentaries on Peckham originated at Cracow University[5], and Vienna University benefited from the presence of one of the most famous late medieval commentators on *perspectiva*, Henry of Langenstein[6].

It may seem that there is nothing to investigate in Prague, that the extant sources are too scarce to evaluate the role of optical science at the Prague Faculty of Arts. After all, this is the honest surrender taken by Polish science historian Grażyna Rosińska in her book on optics in the fifteenth century: she admits that in the absence of manuscripts, she was not able to investigate the optical tradition at Prague University, no matter how significant it might be[7].

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2 See *Catalogi librorum vetustissimi Universitatis Pragensis / Die ältesten Bücherkataloge der Prager Universität*, eds. Z. Silagiová, F. Šmahel, Turnhout, Brepols, 2015, p. 51 (shelfmark R II: Q7), 146–147 (shelfmark N II: O10).

3 It might be objected that there is a disputed question on visual perception in MS Prague, NK ČR, VIII E 27, fols 1r–3v (called *Quaestio de apprehensione rerum per visum disputata Erfordie* in Truhlář, *Catalogus*, vol. I, p. 573 and Lindberg, *A Catalogue*, p. 31). However, this codex was most likely written in Erfurt and the question itself was disputed there around 1350 by a disciple of Themo Judaei. See J. Pinborg, "The 14th Century schools of Erfurt. Repertorium Erfordiense", in *Cahiers de l'Institut du Moyen-Âge Grec et Latin*, 41 (1982), p. 186. Although the copy of *Sphaera materialis* included in the same codex was used by the later owner of the codex, Petrus de Dwekaczowicz called Bibat, in his lectures on the same subject in 1448 and 1450 (see Truhlář, *Catalogus*, vol. I, p. 573), the perspectivist *quaestio*, as far as I know, had no significant influence on the Prague intellectual milieu. An edition of this *quaestio* is under preparation by Jean Celeyrette, see J. Celeyrette, "Une question de perspective disputée à Erfurt partiellement copiée sur une question d'Oresme", in *Noctua*, 5 (2019), p. 125–179.

Further, I discovered hitherto unknown anonymous questions on *perspectiva* in MS Prague, KMK, M 100, fols 69rb–72rb (I am preparing a new description of the codex and edition of the questions). Nevertheless, the codex seems to have been assembled outside Prague (probably in Paris), and there is no indication of any kind of reception of these questions in Prague.

4 Cf. Lindberg, *A Catalogue*, p. 69, 71.

5 Grażyna Rosińska identified and scrutinized four Cracovian commentaries – an anonymous lecture reported by John of Ludzisko (1421), a commentary by Sędziwój of Czechel (1430) and two anonymous lectures by students of Marcin Król (Martinus Rex) of Żurawica (1444 and 1454). See G. Rosińska, *Optyka w XV wieku. Między nauką średniowieczną a nowożytną* [Fifteenth-Century Optics. Between Medieval and Modern Science], Wrocław, Ossolineum, 1986, p. 51–109, 182–184 (English summary). See also mentions of Sędziwój made by D. C. Lindberg, *John Pecham and the Science of Optics. Perspectiva communis. Edited with an introduction, English Translation, and Critical Notes*, Madison / Milwaukee / London, University of Wisconsin Press, 1970, p. 13–14, 30–31.

6 It ought to be said that Henry of Langenstein wrote his *quaestiones* on Peckham's *Perspectiva communis* early in his career as a regent master in Paris, probably as early as in the 1360s (for Henry's life and the dates of his works see N. H. Steneck, *Science and Creation in the Middle Ages: Henry of Langenstein (d. 1397) on Genesis*, Notre Dame, University of Notre Dame Press, 1976, p. 9–22, for his tenets in optics and theory of light see p. 42–52.

7 Rosińska, *Optyka w XV wieku*, p. 17–18.

The main aim of the present paper is to point out that efforts to investigate *perspectiva* in the context of late medieval Prague University are not so vain. As counting optical manuscripts kept in a local library is now neither the only nor the best way to judge the dissemination of *perspectiva* in this place in the later Middle Ages, I suggest other ways to deal with the issue and argue that there are other types of sources to be considered. Therefore, section I inquires into studying optics at the Prague Faculty of Arts, highlighting both the faculty statutes and students' lists of the lectures actually attended. Also, it argues for a certain knowledge of optics among a considerable number of university members at least since the 1370s, by pointing to two lectures or commentaries (a philosophical one by Jenek of Prague and a theological one by Conrad of Soltau) whose authors assumed an acquaintance with *perspectiva* among their listeners. Section II draws attention to a type of source which – despite its arguable fruitfulness – has been under-investigated by historians of science: Prague quodlibetal disputations (1390s – 1410s), or the handbooks prepared by masters presiding over the quodlibets (*quodlibetarii*) and the elaborated *positiones* of the responding masters. Even a brief look at these texts reveals the acquaintance of the participants with optical *auctoritates* (e.g. the preparation of Simon of Tišnov [Šimon z Tišnova in Czech]). Finally, section III, the most extensive, represents the core of the paper and brings a thorough analysis of the question on the mechanism of vision (*Utrum sensationes fiunt per extramissiones virtutum ab organis sensitivis*) disputed by the Bohemian master John of Borotín (Iohannes de Borotin, 1378 – after 1458) in John Hus's *quodlibet* in 1411. The manuscript preservation of the question and its formal structure, as well as Borotín's sources and doctrinal position, are scrutinized. Borotín's question evinces that its author mastered John Peckham's textbook *Perspectiva communis* and adopted Peckham's view on the mechanism of vision, proposing a position intromissionist in general but also involving a kind of extramission. The paper also has two appendices – the first provides a description of part of MS Prague, NK ČR, X H 18 preserving Borotín's question, while Appendix II is a critical edition of the question.

1. Studying Optics at the Prague Faculty of Arts

First, it is worth premising what medieval optics is about. A marginal gloss in one of the Prague manuscripts of Peckham's *Perspectiva communis* introduces a brief definition of the discipline: "Optics is a doctrinal science about light, colors and 'aspects'[8]." First, *perspectiva* is called a "doctrinal science". In the Middle Ages, "doctrinal sciences" are those abstracting away from the specific physical realization of the object under consideration; roughly, mathematical studies – besides optics, arithmetic, geometry, or astronomy – are counted among them[9]. They investigate

8 Iohannes Peckham, *Perspectiva communis*, MS Prague, KMK, L 29, fol. 21r, *in mg. sup.*: "Perspectiva est lucium, colorum et aspectuum doctrinalis sciencia."

9 See, e.g., Isidorus Hispalensis, *Etymologiarum sive Originum libri XX*, 2 vols, ed. W. M. Lindsay, Oxford, Clarendon Press, 1911, III. Prol.; sometimes, the term "scientia disciplinalis" is used; see Domini-

some features of nature (such as the propagation of light, its reflection or refraction in optics), but only insofar as they can be described using geometry. More Aristotelian classifications subsume optics (along with astronomy and harmonics) under the so-called "middle sciences" (*scientiae mediae*) belonging both to mathematics and natural philosophy[10]. Second, the gloss determines the object of optics – it studies not only light and colors but also *aspectus*, i.e. the appearances of things (hence, some optical texts and the whole science are sometimes called "de aspectibus"). In other words, medieval optics is not only a physics of the propagation of light but also an investigation of the physiological and even psychological processes behind visual acts. Hence, the scope of medieval *perspectiva* is considerably larger than that of present-day optics: whereas nowadays optics is a *physical* science about light and its properties, medieval optics is a conglomerate of physical, geometrical, physiological and even psychological inquiries[11].

The blossoming of the *perspectiva* in Latin Europe came in the thirteenth century. Then, optics was one of the new sciences and was, as Roger Bacon says, both seminal for a knowledge of nature and neglected by his contemporaries[12]. Indeed, a full-fledged mastering of the optical science was scarce until the mid-thirteenth century. By that time, all of the important Greek and Arabic renderings of the discipline (i.e. works by Euclid, Ptolemy, Al-Kindi and especially Ibn al-Haytham, or Alhacen) had already been translated into Latin, and the discipline was assimilated and rendered into the context of Latin learning thanks to figures such as Roger Bacon, John Peckham and Witelo, who all authored textbooks or compendia of the optical science[13].

Thereafter, *perspectiva* was gradually incorporated into the curriculum of philosophy studies at the *studia* of some religious orders and faculties of arts[14].

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cus Gundissalinus, *De divisione philosophiae*, ed. L. Baur, Münster, Aschendorff, 1903, prol., p. 15. The opposite of "doctrinal" is a "natural science".

10 See, e.g., Benedictus Hesse de Cracovia, *Quaestiones disputatae super tres libros De anima Aristotelis* (written in c. 1420s), MS Cracow, BJ, 2013, fols 8v–9r, cited by M. Markowski, *Burydanizm w Polsce w okresie przedkopernikańskim*, Wrocław, Ossolineum, 1971, p. 86: "[…] astronomia, perspectiva, musica […] aliqualiter participant de mathematica et aliqualiter de philosophia naturali, et ergo dicuntur sciencie medie inter mathematicam et philosophiam naturalem sicud […] perspectiva considerat de linea visuali, modo linea pertinet ad mathematicam sed visus ad naturalem." For Hesse's sophisticated division of the sciences, see Markowski, *Burydanizm w Polsce w okresie przedkopernikańskim*, p. 53–56.

11 See A. M. Smith, "What is the History of Medieval Optics Really About?", in *Proceedings of the American Philosophical Society*, 148–2 (2004), p. 180–194, who argues that whereas modern optics is "luminocentric", the pre-modern one was rather "oculocentric".

12 Rogerius Bacon, "Opus tertium", in *Fr. Rogeri Bacon Opera quaedam hactenus inedita*, vol. II, ed. J. S. Brewer, London, Longman, Green, Longman, and Roberts, 1859, p. 36–38.

13 On the contributions of these three authors see D. C. Lindberg, *Theories of Vision from al-Kindi to Kepler*, Chicago, University of Chicago Press, 1976, p. 107–121 or A. M. Smith, *From Sight to Light: The Passage from Ancient to Modern Optics*, Chicago / London, The University of Chicago Press, 2015, p. 260–277.

14 Although it is neglected in this paper, the domain of *perspectiva* is not restricted only to the university milieu. As early as the late thirteenth century, *perspectiva* became a popular source for preachers. The moral dimensions of optical science are epitomized in the famous preaching manual *De oculo morali* by Peter of Limoges (written around 1280). This treatise was based on a careful study of Roger Bacon's *Per-*

Interestingly, historians of science often mention that the earliest record in any university statutes to obligatory lectures on optics is, in fact, from Prague[15]. In the dean's book (*Liber decanorum*) of the Arts faculty, there is a statute enumerating which lectures a bachelor of arts must attend to be eligible for the master's exam. Lectures on *Perspectiva communis* (which is the most suitable for beginners of all the perspectivist texts) are included among other works from the fields of mathematics and astronomy[16]. This prescription is often dated 1390, like the entire *Liber*

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spectiva and original deduction of moral analogies and instructions from optical issues. On the place of *De oculo morali* in the perspectivist tradition see R. Newhauser, "Inter Scientiam et Populum: Roger Bacon, Pierre de Limoges and the Tractatus moralis de oculo", in J. A. Aertsen, K. Emery, A. Speer (eds.), *After the Condemnation of 1277. Philosophy and Theology at the University of Paris in the Last Quarter of the Thirteenth Century*, Berlin / New York, De Gruyter, 2001, p. 682–703 or D. G. Denery, *Seeing and Being Seen in the Later Medieval World. Optics, Theology and Religious Life*, Cambridge, Cambridge University Press, 2005, p. 75–115.

Although written at the University of Paris, it soon gained widespread dissemination outside universities and became a true medieval bestseller: there are more than 200 extant manuscripts of this text (Newhauser, "Inter Scientiam et Populum", p. 688–689). It was obviously also read in the Bohemian lands. Even a quick look into the catalogs reveals a considerable number of copies of *De oculo morali* – e.g. in MSS Prague, NK ČR, I B 15; IV C 1; V C 10; VIII E 25; X B 24; XI C 8; XIV E 25; Prague, KMK, F 115; MSS Olomouc, Sbírka rukopisů Metropolitní kapituly u sv. Václava v Olomouci, CO 215; Olomouc, Vědecká knihovna, M II 79. There is also a copy of Bohemian origin now kept in Uppsala (MS Uppsala, Universitetsbiblioteket, C 641) which, according to its explicit, was written in Prague in the 1370s (note that the scribe was uncertain about the authorship and ascribed it to Thomas Bradwardine): "Explicit tractatus de oculo morali a doctore profundo magistro thoma Brabd bradbardeyn ut fertur finitus prage anno domini MCCC septuagesimo 4°." (MS Uppsala, Universitetsbiblioteket, C 641, fol. 57r, cited by M. Andersson-Schmitt, H. Hallberg, M. Hedlund, *Mittelalterliche Handschriften der Universitätsbibliothek Uppsala. Katalog über die C-Sammlung*, 6 vols, Stockholm, Almqvist & Wiksell International, 1988–1993, vol. 6, p. 192, where the codex is also described.) It is highly probable that a future edition of Prague homiletical works will uncover at least some optical hints in the sermons, likely influenced by Peter of Limoges.

15 See Lindberg, *Theories of Vision*, p. 121; Smith, *From Sight to Light*, p. 280–281.

16 *Statuta et Acta rectorum Universitatis Carolinae Pragensis 1360–1614*, ed. F. Šmahel, G. Silagi, Praha, Karolinum, 2018, p. 243 (II. 27): "Statutum fuit [...] quod nullus magistrorum de facultate nostra, qui pro examinatore magistrandorum fuerit deputatus, aliquem ad tentamen admittat, nisi complete audiverit libros infra scriptos, videlicet omnes libros Maioris physice, logicam Aristotelis, Ethicorum, Politicorum, Economicorum, sex libros Euclidis, [Iohannis de Sacrobosco] Spheram, [Campani Novariensis] Theoricam [planetarum], aliquid in musica et arismetica, Perspectivam communem [Iohannis de Peckham], De sensu et sensato, De somno et vigilia." I split the phrase "Spheram theoricam" into the two different astronomical works. See also *Statuta et Acta rectorum Universitatis Carolinae Pragensis*, p. 256 (V. 29), where it is stated that the lectures on *Perspectiva communis* should be conducted weekly for at least three months, but no longer than 14 weeks; and *Statuta et Acta rectorum Universitatis Carolinae Pragensis*, p. 260 (V. 40), where *Perspectiva communis* is listed among books that ought not to be taught on feast days.

Interestingly, the Prague statutes are much more specific regarding mathematical (or quadrivial) disciplines than, e. g., the Parisian ones. A Parisian statute from 1366 includes only a general mention that a student striving for the license is required to attend lectures on "some mathematical books" (*Chartularium Universitatis Parisiensis*, 4 vols, eds. H. Denifle, A. Chatelain, Paris, Delalain, 1889–1897, vol. III, p. 145). In an older prescription, it is given more precisely that the bachelor should have attended "at least a hundred lectures on maths" which means, e. g., "one entire mathematical book, such as the treatise On sphere" completed and "another book in progress" (*Chartularium*, vol. II, p. 678).

decanorum; however, what is called *Liber decanorum* today is actually a "new" book created by then dean Matthias of Legnica, who also included older materials there[17]. As F. Šmahel points out, the statute article prescribing obligatory lectures on *perspectiva* is actually from the earliest stratum of the *Liber decanorum,* and its *terminus ante quem* is 1366[18].

Hence, *perspectiva* might have been taught in Prague from at least the 1360s. Does a statute as a normative statement, though, entitle us to infer anything about *actual* practice? Obviously, further evidence is needed. A proof that attending optical lectures was common practice among bachelors of arts can be gained from two lists of lectures attended by Prague students in the late 1380s[19]. According to these, both students attended lectures on Peckham's *Perspectiva communis* delivered by Frederick of Drosendorf. The first student attended lectures on *Perspectiva* concurrently with lectures on Euclid and *Theorica planetarum* (all three delivered by Drosendorf)[20]. The second student first heard lectures on the 2nd and 3rd books of *Perspectiva communis* (on seeing by reflection and refraction, mirrors, lenses and some atmospheric phenomena), and only later lectures on the 1st book (on light, anatomy and physiology of the visual organ, visual process and its condition and illusions)[21]. Again, Drosendorf delivered all the lectures. However, since Drosendorf earned his master's degree in 1387 (and his performance at the exams was not particularly compelling), the quality and originality of his lectures on *perspectiva* delivered a year or two later is doubtful at best[22].

Another testimony to Prague lectures on *perspectiva* is more than a decade older (and arguably the oldest one known today) – in a manuscript once kept in Halberstadt, a copy of Peckham's *Perspectiva communis* was accompanied by an explicit

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17 See Lindberg and Smith cited above (n. 15); on replacing the oldest book by *Liber decanorum* see F. Šmahel, *Die Prager Universität im Mittelalter / The Charles University in the Middle Ages. Gesammelte Aufsätze / Selected Studies*, Leiden / Boston, Brill, 2007, p. 223–224.

18 Šmahel, *Die Prager Universität im Mittelalter*, p. 308.

19 These two lists are extant in MS Cracow, BJ, 659, fol. 102v and MS Vatican, BAV, Pal. lat. 1353, fol. 119v and edited and analyzed by F. Šmahel – see Šmahel, *Die Prager Universität im Mittelalter*, p. 316–335.

20 Šmahel, *Die Prager Universität im Mittelalter*, p. 324, 331.

21 Šmahel, *Die Prager Universität im Mittelalter*, p. 326–327, 334–335. Possibly, the second student wanted to combine his classes thematically – he attended lectures on Aristotle's *Meteorology* concurrently with the lectures on *Perspectiva communis* II–III (at least partially) and on Aristotle's *De sensu et sensato* simultaneously with the lecture on *Perspectiva communis* I.

22 See Šmahel, *Die Prager Universität im Mittelalter*, p. 325; for Drosendorf in Prague see also J. Tříška, "Příspěvky k středověké literární universitě I [Contributions to the Medieval Literary University I]", in *Acta Universitatis Carolinae – Historia Universitatis Carolinae Pragensis*, 9–1 (1968), p. 21. In the 1390s, we find Drosendorf in Vienna, studying medicine and teaching mathematical disciplines at the local university. He lectured on *Perspectiva communis* twice and on *Proportiones breves*, the abbreviation of Bradwardine's *De proportionibus*. See S. Günther, *Geschichte des mathematischen Unterrichts im deutschen Mittelalter bis zum Jahre 1525*, Berlin, A. Hofmann & Comp., 1887, p. 198–199. Later, he gained fame as the "astrologer of Austria" and organized a disputation upon the appearance of the comet in 1402. He died in 1404. See M. H. Shank, "Academic Consulting in Fifteenth-Century Vienna: The Case of Astrology", in E. Sylla, M. McVaugh (eds.), *Texts and Contexts in Ancient and Medieval Science*, Leiden / New York / Köln, Brill, 1997, p. 253–254.

stating that it was taught at Prague University in the royal doctor's house in 1374[23]. The codex also included an optical treatise on the rainbow, but unfortunately, it is most likely lost today[24].

Another, more indirect proof that Prague masters (and their students) were acquainted with optics in this early period are references to perspectivist texts made by them in lectures or commentaries on other works. The assumption here is that if a master refers to a perspectivist work or doctrine, he must know it, and it is also understandable to, and easily traceable and verifiable by, his listeners (as they have access to these texts in a library or have attended lectures on the issue). Two examples of such references can be introduced here – both texts are from the 1370s, to which the earliest evidence of optical lectures can be dated.

The first example is found in the commentary on *De anima* by Jenek of Prague (Jenco Wenceslai de Praga), usually dated 1375[25]. The references to optics are in the exposition of a passage in *De anima* II where Aristotle mentions kinds of objects which do not have any specific color in light, but which still appear luminous in darkness (he gives the examples of fungi or the scales or eyes of fish)[26]. This claim, however, seems to contradict the common Aristotelian conviction that what is seen is primarily the color and not the light. Commenting on this passage, Jenko first states that the issue pertains to the practitioners of *perspectiva* (*ad perspectivos pertinet*). He refers to Alhacen, whose explanation is that a more intense light somehow "covers" the less intense one. A consequence is that a remote candle or stars are not visible in the daylight, but they are easily visible at night[27]. Jenek here evidently

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23 MS Halberstadt, Domgymnasium, MS 217; the explicit, cited by the catalog (G. Schmidt, "Die Handschriften der Gymnasial-Bibliothek II", in *Königliches Dom-Gymnasium zu Halberstadt. Oster-Programm 1881*, Halberstadt, 1881, p. 20), is as follows: "Finita est hec perspectiva communis magistri Johanis de Pysa anno Domini m.xxx.lxxiiij, in die s. Frederici imperatoris in honoranda universitate Pragensi, in domo medici imperatoris, per Allexium de Wratislavia, hora quinta decima." This explicit has already been used by Šmahel, *Die Prager Universität im Mittelalter*, p. 107–108, 136 as proof that the lectures of the Prague Faculty of Medicine might initially have been delivered in the houses of royal doctors.

24 The likely loss of the codex was suggested by Dr. Patrizia Carmassi (Herzog August Bibliothek, Wolfenbüttel) who was responsible for new cataloging of Halberstadt manuscripts, in an e-mail conversation from April 2017.

25 On Jenek see P. Spunar, *Repertorium auctorum Bohemorum provectum idearum post Universitatem Pragensem conditam illustrans*, 2 vols, Wrocław, Ossolineum, 1985–1995, vol. I, p. 51–53 or C. H. Lohr, "Medieval Latin Aristotle Commentaries Authors: Johannes de Kanthi – Myngodus", in *Traditio*, 27 (1971), p. 301–302; on his *De anima* commentary see M. Mráz, "Commentarium magistri Johannis Wenceslai de Praga super De anima Aristotelis (Der gegenwärtige Zustand der Forschungsarbeit)", in *Mediaevalia Philosophica Polonorum*, 26 (1982), p. 79–91. The date (or, at least, a *terminus ante quem*) is based on the explicit of the commentary in MS Prague, NK ČR, VIII G 30, fol. 109r.

26 Aristoteles, *De anima* II, 7, 419a1–7, cf. also Averroes, *Commentarium magnum in Aristotelis de anima libros*, ed. F. S. Crawford, Cambridge, MA, The Mediaeval Academy of America, 1953, II, 72, p. 239–240.

27 Ienco Wenceslai de Praga, *Commentarius in I–III libros De Anima Aristotelis*, MS Prague, NK ČR, VIII G 30, fol. 70v: "[…] non omnes res sunt visibiles mediante aere illuminato […]. Quedam enim visibilia in lumine non videntur, sed in tenebra sub racione lucis, ut illa corpora que satis habent de igne in sua composicione, videntur in tenebris et sub racione qua lucent […] propter quam causam

refers to the second chapter of Alhacen's *De aspectibus*, book I, which is devoted to these kinds of situations[28].

Another example may be found in a theological text – the commentary on *Sentences* by Conrad of Soltau, who lectured on *Sentences* in Prague around 1380[29]. Perspectivist influences are usually concentrated in one particular place in *Sentences* commentaries – the thirteenth distinction of book II, devoted to the issue of creation of light. Theologians had here an opportunity to show their proficiency in optics, dealing with such issues as the nature of light, its propagation, colors and so on[30]. In his rather brief treatment of the question, Soltau refers four times to optical science or directly to Peckham's *Perspectiva communis* (in one case, he even makes an exact reference to a specific proposition of Peckham's)[31].

However, does Soltau not borrow these references from another source? After all, his commentary is significantly influenced by the corresponding work of Thom-

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hec in tenebris sunt visibilia alia racio est, i.e. ad perspectivos pertinet, qui dicunt, quia sunt luminosa unde generaliter vel videntur tamquam proprium sensibile a visu nisi color et lumen, de die autem non videntur, quia lumen maius occultat multa visibilia que minus lucent, oportet per Alacen. Eciam lumen minus non videtur in lumine maiori secundum perspectivos. Est causa: sicud sonus maior ocultat minorem, sic lumen maius ocultat minus. Hec eciam est causa, quare candela de nocte accensa videtur a remotis et non de die et quare stelle apparent de nocte et non de die."

28 Cf. Alhacen, "De aspectibus, I–III", ed. A. M. Smith, in A. M. Smith, *Alhacen's Theory of Visual Perception*, Philadelphia, American Philosophical Society, 2001, I. 2, §4. 8 and 4. 10, p. 5–6. A similar solution was also proposed in the Buridanian tradition of *De anima* commentaries. See (Pseudo-)Iohannes Buridanus, "Expositio De anima", ed. B. Patar, in B. Patar, *Le Traité de l'âme de Jean Buridan [De prima lectura]. Édition, étude critique et doctrinale*, Louvain-la-Neuve / Longueil (Québec), Editions de l'Institut supérieur de philosophie / Editions du Préambule, 1991, II. 4, 1, p. 82–83 or Nicolaus Oresmius, "Expositio in Aristotelis De anima", in B. Patar, *Nicolai Oresme Expositio et quaestiones in Aristotelis De anima*, Louvain / Paris, Éditions Peeters, 1995, II. 4, 1, p. 42–43; however, none of them mentions *perspectiva* in this passage, which renders the possibility that Jenek just borrowed the reference from another commentary unlikely. Note that Buridan's authorship of the exposition of *De anima* edited and ascribed to him by B. Patar has recently been seriously contested – see S. W. De Boer, P. J. J. Bakker, "Is John Buridan the Author of the Anonymous *Traité de l'âme* Edited by Benoît Patar?", in *Bulletin de philosophie médiévale*, 53 (2011), p. 283–332. I therefore refer to the text as by *pseudo*-Buridan.

29 On Conrad of Soltau see Tříška, "Příspěvky I", p. 14; J. Tříška, "Příspěvky k středověké literární universitě III [Contributions to the Medieval Literary University III]", in *Acta Universitatis Carolinae – Historia Universitatis Carolinae Pragensis*, 10–1 (1969), p. 26–27 and most recently C. Schabel, M. Brinzei, M. Maga, "A Golden Age of Theology at Prague: Prague *Sentences* Commentaries from 1375 to 1385, the *terminus post quem* for Evidence of Wycliffism in Bohemia", in *Acta Universitatis Carolinae – Historia Universitatis Carolinae Pragensis*, 55–1 (2015), p. 30–33 (where the date of Soltau's lectures is also deduced).

30 On the distinction and its importance for historians of philosophy and science see K. H. Tachau, "Some Aspects of the Notion of Intentional Existence at Paris, 1250–1320", in S. Ebbesen, R. L. Friedman (eds.), *Medieval Analyses in Language and Cognition*, Copenhagen, Kgl. Danske Videnskabernes Selskab, 1999, p. 333–343.

31 Conradus de Soltau, *Questiones in IV libros Sentetiarum*, MS Prague, NK ČR, I D 23, II. 13, fols 72rb–73ra: "(72rb) Utrum lumen in medio sit forma realis […]. (72vb) […] colores […] non videntur sine lumine, ut patet 2° *De anima* et ex prima parte *Communis perspective*. […] (73ra) […] lumen multiplicatur a corpore luminoso ad medium, ut patet per multas proposiciones perspective et per experienciam […] in eodem medio possunt esse duo lumina inpermixte, ut dicit VII[a] proposicio prime partis *Communis perspective*. […] 4[us] articulus, qui solet hic tractari, est expeditus in perspectiva, quia species colorum distinctorum simul multiplicantur per medium et iste species sunt forme intencionales."

as of Strasbourg, as a recent paper suggests[32]. On the one hand, Conrad evidently draws his inspiration from Thomas of Strasbourg in dividing the distinction into four *articuli*[33]; he also shares Thomas's stance in all four cases (in one instance with an explicit reference to him)[34]. Nevertheless, with one exception (different from Conrad), Thomas does *not* refer to optics or Peckham. Even if Conrad's rendering of the question was a mere abbreviation of the one by Thomas, then, Conrad's perspectivist hints would be his own[35]. It may thus be concluded that writing his commentary on *Sentences*, Conrad of Soltau was equipped with certain optical knowledge and might count on the same among his listeners.

To summarize, the optical texts (chiefly Peckham, but perhaps also Alhacen) were known to Prague masters and students as early as in the 1370s – lectures on optics were delivered then, and the tenets of the discipline were referred to in both philosophical and theological texts.

2. Discussing Optics in Prague Quodlibets (c. 1394–1417)

Although acquaintance with *perspectiva* among the members of Prague University is already attested in the 1370s, there is substantially richer evidence of optical knowledge in Prague from the 1390s to the beginning of the Hussite Wars – namely, Prague quodlibetal disputations that took place at the Faculty of Arts[36]. As the questions on optics-related issues are rather numerous, this section is selective[37]. It lists the optical questions disputed in the quodlibets, briefly summarizes their topics, and focuses on how this kind of source can be utilized as evidence for the dissemination of *perspectiva* in the Prague University milieu (on the example of a question included in the *quodlibet* by Simon of Tišnov). As the rest of the paper is devoted to the question on vision disputed by John of Borotín in the 1411 *quodlibet* chaired by John Hus, Hus's preparation for the disputation with Borotín is briefly considered here, and its Wycliffian source is uncovered.

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32 Schabel, Brinzei, Maga, "A Golden Age of Theology at Prague", p. 32.

33 Compare Conrad's text with Thomas de Argentina, *Commentaria in IV libros Sententiarum*, Venice, Iordanus Ziletti, 1564, II. 13, fols 155rb–156va.

34 Conradus de Soltau, *Sent.* II. 13, MS Prague, NK ČR, I D 23, fols 72vb–73ra: "Quantum ad 2^{m} articulum dicit Tomas de Argentina quod non sunt eiusdem nature lumen vel lux corporum celestium et istorum inferiorum […]."

35 E.g. Conrad's solution of the 4th article is (contrary to that of Thomas) a mere statement that the issue is already solved in *perspectiva*.

36 The fact that *perspectiva* remained an obligatory part of the university curriculum even after the secession of the German masters in 1409 is attested by a brief mention made by John Hus in his *Quodlibet*. Hus, introducing the young master Elias de Tyn (who had earned his master's degree in 1410), stresses that Elias had devoted himself to study of *perspectiva* recently. See Iohannes Hus, *Quodlibet*, ed. B. Ryba, Turnhout, Brepols, 2006, q. 52, p. 240–241: "[…] Magister E<lias> de T<yn> […] illi sciencie [scil. perspective] hoc anno specialiter in leccione deditus, scolas nostras in hac materia clarissime informabit."

37 The author of this paper is preparing another study devoted precisely to the issue of *perspectiva* in Prague quodlibets.

First, it is worth emphasizing that the Prague quodlibets differ substantially from the traditional ones in several aspects[38]. The traditional quodlibets (from the thirteenth and early fourteenth centuries) were organized at *theological* faculties or the *studia* of different religious orders. A prominent theologian (deputized by his bachelor) had to answer whatever question was put by any member of the academic community, and then face counter-arguments to his solution. After this first part of the disputation, the master reorganized the questions according to similarities in their topics, summarized the discussions and stated his position on each of the questions (this elaborated version of his positions was called the *determinatio*), and introduced it to the community several days later. After that, he sometimes refined his text into a final version intended for distribution (*ordinatio*)[39]. Thus, traditional quodlibets are often original and profound texts produced by the best scholars at the peak of their careers.

By contrast, the Prague quodlibets were instead a collaborative enterprise. The quodlibets we have evidence for were held at the *Faculty of Arts*. The role of the master organizing the session was radically different: he did not answer the questions, but put them. The *quodlibetarius* had to prepare a question for each master of the faculty (often regarding the field of expertise of the latter) and then present counter-arguments against the latter's solution. Thus, the *quodlibetarius* prepared a handbook of these questions, including several counter-arguments against both positive and negative solutions to each question (as he did not know which of the options the responding master would choose, the *quodlibetarius* had to prepare for any of them). Since *positiones* of the responding masters are rather rarely extant, the actual handbooks of the *quodlibetarii* (or rather copies of them) are the best source we have for the study of the Prague quodlibets. Obviously, in this case, we confront a specific kind of source. These preparations often do not include any con-

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38 For quodlibets (both as specific disputation sessions organized at medieval universities and *studia* and as a special kind of written sources) in general see J. W. Wippel, "Quodlibetal Questions, Chiefly in Theology Faculties", in B. C. Bazàn, G. Fransen, J. W. Wippel, D. Jacquart (eds.), *Les questions disputées et les questions quodlibétiques dans les facultés de théologie, de droit et de medicine*, Turnhout, Brepols, 1985, p. 151–222 or J. Hamesse, "Theological Quaestiones Quodlibetales", in C. Schabel (ed.), *Theological Quodlibeta in the Middle Ages: The Thirteenth Century*, Leiden / Boston, Brill, 2006, p. 17–48. On the quodlibets at the Prague Arts Faculty see esp. J. Kejř, *Kvodlibetní disputace na pražské univerzitě* [Quodlibetal Disputations at Prague University], Praha, Universita Karlova, 1971 and Šmahel, *Die Prager Universität im Mittelalter*, p. 336–386. The traditional theological quodlibets and the quodlibetal sessions in the newly founded Central European universities (mainly Prague) are compared in Kejř, *Kvodlibetní disputace*, p. 23–41; Wippel, "Quodlibetal Questions", p. 205–214; O. Weijers, *La 'disputatio' dans les Facultés des arts au Moyen Âge*, Turnhout, Brepols, 2002, p. 298–312 and O. Pavlíček, "Parisian and Prague *Quodlibeta* Compared: The Transfer of the Quodlibetal Disputation between the Faculties and Jerome of Prague's Struggle against the Thematic Limitations Imposed on the Faculty of Arts", in E. Jung (ed.), *What is New in the New Universities? Learning in Central Europe in the Late Middle Ages (1348–1500)*, Warszawa, Wydawnictwo IFiS PAN, 2018, p. 325–356. See also B. Kocánová, "The Sublunary Phaenomena as a Subject of Medieval Academic Discussion: Meteorology and the Prague University Disputationes de Quolibet", in *Early Science and Medicine*, 22–1 (2017), p. 72–102 who analyzes meteorological issues as represented in the Prague quodlibets.

39 On the course of the disputation see Hamesse, "Theological Quaestiones Quodlibetales", p. 32–38.

clusions but merely counter-arguments for both possible solutions. Moreover, the *quodlibetarius* might help himself by copying the preparation from another kind of source (see Hus below). However, when the preparation is not copied down word for word, it may still reveal what sources the *quodlibetarius* had at his disposal when he was preparing for the disputation (see Simon of Tišnov below).

Today, no less than fourteen *quodlibetarii* from the period between 1394 and 1417 are known at least by name[40]. Further, there are extant handbooks by seven of them: Henry of Ribenice (1394?), Matthias of Legnica (1399?), John Arsen of Langenfeld (1400?), Matthias of Knín (1409), John Hus (1411), Simon of Tišnov (1416) and Prokop of Kladruby (1417). Each of their handbooks is preserved in a single manuscript, and they have not yet been edited except for the handbook by Hus edited by Bohumil Ryba.

When the lists of questions from of all of these quodlibets are examined[41], no less than 13 questions relating explicitly to optics may be identified. All the *quodlibetarii* (except Arsen) included at least one perspectivist question in their handbooks:

Henry of Ribenice (MS Leipzig, Universitätsbibliothek, Ms 1414)

(1) q. 48: *Utrum radius visualis frangatur in occursu medii rarioris seu densioris*

Matthias of Legnica (MS Stralsund, Stadtarchiv, Hs 1067, fols 207r–279r)

(2) q. 85: *Utrum visio facta sub pyramide radiosa fiat extra mittendo vel recipiendo*

Matthias of Knín (MS Prague, KMK, L 45)

(3) q. 37: *Utrum species qualitatum per se sensibilium existat in medio realiter et subiective*

(4) q. 72 (73): *Utrum demonstrabile est iridem tantum tricolorem peripheriam circuli apparere*

(5) q. 114 (116): *Utrum visio facta sub pyramide radiosa fiat intus suscipiendo vel extramittendo*

(6) q. 137 (140): *Utrum multiplicatio luminis per medium uniforme sit uniformiter difformis*

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40 The list of all known quodlibets, extant manuscripts and literature on each of them is in Šmahel, *Die Prager Universität im Mittelalter*, p. 377–381. Besides the quodlibets listed by Šmahel, I found what seems to be another Prague quodlibet in two Cracow manuscripts – in MS Cracow, BJ, 649 and (slightly abbreviated) in MS Cracow, BJ, 624 (which also preserves several abbreviated questions from Ribenice's *quodlibet*). Arguably, both codices are of Prague origin, include a set of questions on various topics with *problemata* and a discussion on the *quaestio principalis*. Both codices can be dated to before 1400 on the basis of watermarks. They are described in M. Kowalczyk et al., *Catalogus codicum manuscriptorum medii aevi latinorum qui in Bibliotheca Jagellonica Cracoviae asservantur*, 9 vols, Wrocław, Ossolineum, 1980–2008, vol. IV, p. 338–343, 398–406.

41 For lists of questions see Kejř, *Kvodlibetní disputace*, p. 116–169 (Knín, Hus, Tišnov, Prokop of Kladruby); J. Tříška, *Starší pražská univerzitní literatura a karlovská tradice*, Praha, Universita Karlova, 1978, p. 141–146 (Matthias of Legnica); and Šmahel, *Die Prager Universität im Mittelalter*, p. 354–358 (John Arsen), 384–386 (Henry of Ribenice).

John Hus (MS Prague, Knihovna Národního muzea, V C 42, fols 1r–54v; ed. B. Ryba 1948, repr. 2006)

(7) q. 28: *Utrum oculus, existens luminosus intrinsece, sit coloratus* (question proposed to Wenceslas Beran (Wenceslaus Beran de Praga); but not disputed)

(8) q. 52: *Utrum necesse est in omni illuminatione naturali lumen multiplicari et radios reflecti* (question disputed by Elias of Týn [Elias de Tyn,], nicknamed "Witelo" by Hus; his position is not extant)

(9) q. 56: *Utrum sensationes fiunt per extramissiones virtutum ab organis sensitivis* (question disputed by John of Borotín, nicknamed "Avicenna" by Hus; his position is analyzed and edited below)

Simon of Tišnov (MS Prague, Knihovna Národního muzea, V C 42, fols 55r–145v)

(10) q. 46: *Utrum oculus ex quatuor tunicis et tribus humoribus compositus pro visione sine fallacia exigit remotionem, oppositionem, lucem proportionalem, quantitatem, medii diaphaneitatem, corporis densitatem, tempus ac sui ipsius sanitatem*

Prokop of Kladruby (MS Prague, KMK, L 27)

(11) q. 28 (29): *Utrum lumen sit actus diaphani manens idem in numero per tempus in ipso medio subiective* (disputed by Wenceslaus Mirowecz, his position is not extant)

(12) q. 36 (37): *Utrum formae sive imagines apparentes in speculis videantur per impressionem factam in ipsis* (disputed by John of Hradec [Iohannes Grecz], his position is not extant)

(13) q. 63 (65): *Utrum omnem visionem sensualem necesse est partim extramittendo fieri partim autem intus suscipiendo*

As for the topics of these quodlibetal preparations, there are several questions on light, its metaphysical nature, its propagation through a medium and even about the refraction of its rays (nos. 1, 3, 6, 8, and 11). Two questions are dedicated to specific optical phenomena, namely the rainbow and mirror images (nos. 4 and 12). Whereas Knín prepared a question on whether there can be demonstrative science about the rainbow[42], Prokop of Kladruby deals with the metaphysical nature of the images appearing in mirrors. Both gather arguments about the metaphysical nature of these phenomena: are they qualities existing in a full-fledged way, or mere appearances with somewhat diminished extramental existence?

Other questions deal with human vision and the eyes (no. 7 and 10): Hus wanted to discuss the Aristotelian definition of vision; Tišnov prepared a fascinating question on the conditions of vision, apparently deeply influenced by perspectivist authors (see below). Finally, the mechanism of vision – i.e. whether an observer sees by intromission (receiving stimuli) or extramission (emitting something from

42 Of all the questions listed above, Knín's seems to be the only one which has been studied by a modern scholar. See Kocánová, "The Sublunary Phaenomena", p. 77–78.

his eyes) – figures prominently in four of these six handbooks (nos. 2, 5, 9, and 13.) The question disputed by Borotín is one of them.

Some of these questions are Aristotelian both by their topic and the sources quoted in them[43]. As for the perspectivist authors, the most quoted is, unsurprisingly, John Peckham; some *quodlibetarii* also refer to Alhacen. Nevertheless, in the context of tracing perspectivist influences, there is one interesting preparation with no counterpart in any known Prague *quodlibet* – that proposed by Simon of Tišnov (no. 10)[44].

The question's title already reveals an apparent familiarity with *perspectiva*. It asks whether there are eight conditions to be met for vision to be veridical – a standard issue in perspectivist literature[45]. When introducing these conditions, Simon of Tišnov even refers directly to Alhacen's *De aspectibus* and enumerates that for vision to be veridical, the object must be remote from and opposite the eyes, illuminated, and of a proper quantity and density, while the air must be transparent and the eye healthy, and a moment of time is needed[46].

Furthermore, Tišnov's preparation includes the most significant number of references to perspectivist texts of all the quodlibetal questions mentioned. I have counted 31 references in total; not only to the Peckham's textbook but also to texts known rather to specialists in optical science:

Peckham, *Perspectiva communis*	17	Bacon, *Perspectiva*	2
Alhacen, *De aspectibus*	8	Euclid, *De visu*	1
Witelo, *Perspectiva*	2	Al-Kindi, *De aspectibus*	1

References to Peckham[47] and Alhacen are direct – to a concrete proposition or chapter, which may indicate that Tišnov had these texts in front of his eyes. Two references to Bacon are interesting: the first is very vague (Bacon is just a name in a list of perspectivists)[48], while the second comprises two pieces of text quoted by Tišnov and ascribed to "someone writing about natural philosophy" (*quidam naturaliter*

43 As further research will probably reveal, some of them are derived from Aristotelian commentaries on, e.g., *De sensu et sensato* or *Meteorologica*.

44 Simon de Tissnow, *Quodlibet*, MS Prague, Knihovna Národního muzea, V C 42, q. 46, fols 131v–133v.

45 See Alhacen, *De aspectibus* III, 3, §3.1–3, p. 285; Rogerius Bacon, "Perspectiva", in D. C. Lindberg (ed.), *Roger Bacon and the Origins of Perspectiva in the Middle Ages*, Oxford, Oxford University Press, 1996, I. 8–9, p. 108–144; Iohannes Peckham, "Perspectiva communis", in D. C. Lindberg (ed.), *John Pecham and the Science of Optics*, Madison / Milwaukee / London, University of Wisconsin Press, 1970, I. 47 (50) – 54 (57), p. 130–134.

46 Simon de Tissnow, *Quodlibet*, q. 46, MS Prague, Knihovna Národního muzea, V C 42, fol. 131v: "Quod questio sit vera pro quesito, arguitur auctoritate Alhacen 3° libro sue *Perspective*, capitulo 3 quod intitulatur 'capitulum de causis, quibus visui accidit decepcio', sic dicentis: quibus completur comprehensio visi, secundum quod est, sunt octo: remocio, opposicio, lux, quantitas, corporis densitas, dyafaneitas aeris, tempus, sanitas visus. Hiis ergo omnibus aggregatis visum comprehenditur vera visione."

47 Peckham is cited as "Pisanus", which is a common mistake in late medieval manuscripts.

48 Simon de Tissnow, *Quodlibet*, q. 46, MS Prague, Knihovna Národního muzea, V C 42, fol. 132r: "[…] maior patet ex primo *Perspective* Alhacen et Pisani et omnium Perspectivistarum, Bacon<is> et Vitellonis etc."

scribens)[49]. Al-Kindi is quoted once as a proponent of an Aristotelian position unusual among the perspectivists – that light spreads out in an instant and hence what we see, we see immediately[50]. As for the arguments, the preparation seems to be written by somebody well-versed in state-of-the-art perspectivist works[51].

Despite poor manuscript evidence, as stated in the introduction, some of the Prague quodlibetal questions – and primarily that by Simon of Tišnov – testify to not negligible degrees of knowledge of *perspectiva*[52]. Tišnov's question, though, – no matter how interesting – remains a *preparation* for discussion (and it is not even certain that it was really discussed during the quodlibetal session). As mentioned, the only optics-related question where both the preparation by the *quodlibetarius* and the *positio* by the responding master are extant is Borotín's question on the mechanism of vision proposed to him by John Hus. Since the rest of the paper is devoted to Borotín's *positio*, this section ends with a brief look at Hus's preparation for this question and its sources[53].

Hus's preparation for the question of whether sensations are by sensory powers being emitted is rather brief and sketchy. Although several arguments both *neganti* and *concedenti* are gathered, all the arguments are ultimately *for* extramission. The first group of arguments is designed for a situation in which Borotín denies extramission (*neganti*) and defend a kind of syncretic account combining extramission with intromission. The second group is prepared for the case that Borotín accepts intromission (*concedenti, quod fit intus suscipiendo*) – and is thus *against* intromission, defending extramission again. Obviously, Hus counted on Borotín's acceptance of the much more common intromissionist view[54].

As Hus's preparation is strongly derivative, it is interesting to trace his sources. Although one expects a commentary on *De sensu* or a perspectivist work as a chief

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49 Simon de Tissnow, *Quodlibet*, q. 46, MS Prague, Knihovna Národního muzea, V C 42, fol. 132v: "In oppositum arguitur et primo contra supposita et primo, quia questio supponit quod oculus componitur ex quattuor tunicis. Contra hoc arguitur sic: non est compositus oculus ex quattuor tunicis, igitur illud primum suppositum questionis est falsum. […] Hoc idem patet auctoritate cuiusdam naturaliter scribentis circa materiam de oculis, questione 2é capitulo 2°, sic dicentis: 'Oculus autem habet tres tunicas seu panniculos et tres humores et unam telam ad modum tele aranee [= Bacon, *Perspectiva* I, 2, 2, p. 26] .' Et in eodem capitulo circa finem dicit: 'Aliqui eciam VII tunicas posuerunt, sed falsum est, quia telam araneam pro tunica computaverunt [= Bacon, *Perspectiva* I. 2, 2, p. 28].'"

50 On the context of the medieval debate see D. C. Lindberg, "Medieval Latin Theories of the Speed of Light", in R. Taton (ed.), *Roemer et la vitesse de la lumière*, Paris, Vrin, 1978, p. 45–72.

51 The profundity and originality of this preparation are also surprising, as Tišnov's quodlibet is traditionally supposed to be heavily influenced by earlier quodlibetal handbooks. Cf. Kejř, *Kvodlibetní disputace*, p. 97–101; Šmahel, *Die Prager Universität im Mittelalter*, p. 369 counts 15 questions copied from Knín's quodlibet by Tišnov.

52 Besides optics-oriented questions, references to perspectivist authorities also appear in other questions on different topics. For example, Zdeněk of Labouň (Zdenko de Labun) in the question debated in Hus's *quodlibet* explains some optical phenomena such as the rainbow or halo as a result of refraction of sunlight in the atmosphere and refers several times to the *Perspectiva* by Witelo, i.e. to a highly technical compendium of optics. Unlike Tišnov's vague reference to Witelo, Labouň refers to specific propositions, which may indicate that he has the text before his eyes. See Zdenko de Labun, "Questio astronomicalis", ed. B. Kocánová, in ead., "Questio astronomicalis Zdeňka z Labouně: Kritická edice [Questio astronomicalis by Zdeněk of Labouň: A Critical Edition]", in *Listy filologické*, 139 (2016), §3.7, p. 158–159.

53 The preparation is edited in Iohannes Hus, *Quodlibet*, q. 56, p. 254–256.

54 As will be scrutinized below, Borotín accepted a syncretic account in the end.

source for such a question, Hus is faithful to his favorite thinker John Wyclif even here and borrows a considerable portion of the text from Wyclif's theological masterpiece *Trialogus*, namely from a chapter on sensation in the first anthropological part of the work[55]. On the other hand, it is not so surprising if one takes into consideration both Wyclif's intense interest in the science of *perspectiva*[56] and the popularity of Wyclif's works among reformist Bohemian masters (concentrated around John Hus and Jerome of Prague)[57].

Thus, even the title of Hus's question prepared for Borotín is borrowed from Wyclif:

Iohannes Hus, *Quodlibet*, q. 56[58]	Iohannes Wyclif, *Trialogus*, II, 7[59]
[…] Hanc autem difficultatem […] Magister Io<hannes> de B<orotin> […] nostro auditorio declarabit. Unde proponitur sibi questio sub hac forma: **Utrum sensaciones fiunt per extramissiones virtutum ab organis sensitivis**.	*Pseustis.* Istam materiam nec tractas philosophice neque fundas, imo difficultas **utrum autem sensationes fiunt per extramissiones virtutum ab organis**, cum aliis difficultatibus, praetermittis […].

In the *neganti* section, Hus then utilizes Wyclif's chapter on sensation, where the evangelical doctor defends a middle position between intromission and extramission. Hus's first argument (inspired by the second part of Wyclif's text) asserts that vision itself is on the intersection of an extension of the (imaginary) visual ray and *cathetus*, i.e., a line drawn through the object perpendicular to the surface of the mirror (The perspectivist *dictum* used here pertains to the issue of the location of the mirror images; unlike Wyclif, Hus mentions the context of mirror perception only at the very end of the argument). As the intersection is (usually) behind the mirror and hence *outside* the eyes, Hus's concludes that vision must be by extramission[60].

55 Iohannes Wyclif, *Trialogus, cum Supplemento Trialogi*, ed. G. Lechler, Oxford, Clarendon, 1869, II. 7, p. 97–98. Note that although Hus's dependence on *Trialogus* in q. 56 is unnoticed by editor B. Ryba, he identifies several borrowings from Wyclif's *Opus evangelicum* in q. 52 (on the multiplication of light). See Iohannes Hus, *Quodlibet*, q. 52, p. 240–246.

56 Copious evidence is provided by H. Phillips, "John Wyclif and the Optics of the Eucharist", in A. Hudson, M. Wilks (eds.), *From Ockham to Wyclif*, Oxford / New York, Basil Blackwell, 1987, p. 245–258.

57 On the dissemination of Wyclif's works in Bohemia in the late fourteenth and early fifteenth centuries and his influence on Prague University masters see V. Herold, *Pražská univerzita a Wyclif* [Prague University and Wyclif], Praha, Univerzita Karlova, 1985; Šmahel, *Die Prager Universität im Mittelalter*, p. 467–489 (chapter on "Wyclif's Fortune in Hussite Bohemia"); or O. Pavlíček, "Wyclif's Early Reception in Bohemia and His Influence on the Thought of Jerome of Prague", in P. Hornbeck, M. Van Dussen (eds.), *Europe after Wyclif*, New York, Fordham University Press, 2017, p. 89–114. According to his own testimony, Wyclif's *Trialogus* was copied in Oxford and brought back to Bohemia by Jerome of Prague himself. See Pavlíček, "Wyclif's Early Reception", p. 94. F. Šmahel, *Verzeichnis der Quellen zum Prager Universalienstreit 1348–1500*, Wrocław, Ossolineum, 1980, p. 16–17 lists five copies of Wyclif's *Trialogus* of Bohemian origin; all of them are today in Vienna (MSS Vienna, ÖNB, Cod. 1387; 3930; 3932; 4505; 4516). There is also evidence – although questionable – that *Trialogus* was translated into Czech by John Hus himself. See F. M. Bartoš, *Literární činnost M. J. Husi* [Literary Activities of Master Jan Hus], Praha, Česká akademie věd a umění, 1948, p. 123.

58 Iohannes Hus, *Quodlibet*, q. 56, p. 255.

59 Iohannes Wyclif, *Trialogus* II. 7, p. 97.

60 Notice also that Wyclif speaks about a "judgment of vision" (*iudicium visionis*), i.e. where the thing seen appears/is judged to be; whereas Hus intentionally reinterprets it as a location of the vision itself (which move enables him to argue for extramission).

Iohannes Hus, *Quodlibet*, q. 56[61]	Iohannes Wyclif, *Trialogus*, II, 7[62]
Neganti: Visio fit per extramissionem virtutis ab organo; igitur questio vera. Assumptum probatur: Si visio fit sub piramide radiosa, ubi radius visualis concurrit cum catheto, ipsa visio fit per extramissionem virtutis ab organo; sed sic est, **quod ipsa visio fit sub piramide radiosa, ubi radius visualis concurrit cum catheto**; igitur etc. Secunda pars **patet per experienciam**. Sed consequencia prima probatur: Nam in concurrencia (p. 256) radii visualis et catheti res videtur; sed planum est, quod **nullum corpus exit ab ipso visibili penetrans ipsum speculum**, nec ipsa res visa est ibi realiter; igitur oportet, quod aliqua virtus ab ipso organo multiplicetur usque ad concurrenciam visualis radii et catheti.	[…] perspectivi vere intelligunt, **quod sit visionis judicium, ubi radius visualis concurrit cum catheto**; ut videndo aquam suppositam vel quodcunque aliud speculum, apparet communiter rem visam ibi situari, ubi linea recta exiens a re visa per speculum, et linea perpendicularis in extremo ejus concurrent, sicut **invincibilis experientia satis docet**; **non quod corpus exit ab ipso visibili penetrans ipsum speculum** et etiam sphaeram terrae lacerans, sed quod in illis sitibus sunt habitudines, secundum quas fit judicium de situatione visibilis, ubi lineae imaginariae sic concurrunt […].

Hus's second argument against denying extramission is developed along the same lines. It argues for a syncretic account, and appeals to the authority of Augustine and Grosseteste. In fact, Hus copies it *verbatim* from the first part of the chapter on sensation in Wyclif's *Trialogus*:

Iohannes Hus, *Quodlibet*, q. 56[63]	Iohannes Wyclif, *Trialogus*, II, 7[64]
Augustinus, Linconiensis et quam plures tenent, quod fit sensacio mixtim per extramissionem virtutis ab organis senciendi et intus recipiendi speciei sensibilis, cum sicud organum virtutis visive recipit lumen species coloris ab obiecto sensibili, sic organa aliorum sensuum species ab obiectis requirunt. Et in primo est error notabilis, cum quidam grossi concipiunt, quod a sensu exit virtus cum corpore et organo senciendi, et sic in brevi consumeretur totum organum; non autem sic debet concipi, sed quod habilitas senciendi in finibus talium actuum limitatur et ad tantum extendit se huiusmodi aptitudo vel habilitas, quod perspectivi vere intelligunt, quod sit visionis iudicium[65], ubi radius visualis con currit cum katheto.	Phronesis. […] Quantum tamen ad difficultatem quam tangis, teneo cum Augustino, Lincolniensi et ceteris, quod fit sensatio mixtim per extramissionem virtutis ab organo, et per intus susceptionem speciei in organo sentiendi. Secundum vero istorum est patulum, cum sicut organum virtutis visivae recipit lumen vel speciem coloris ab objecto sensibili, sic organa aliorum sensuum species ab objectis suis recipiunt. Et in primo est error notabilis, cum quidam grossi concipiunt, quod a sensu exit virtus cum corpore de organo sentiendi, et sic infra breve ex lapsu talis corporis consumeretur organum sentiendi; non autem sic concipio, sed quod aptitudo sive habilitas sentiendi in finibus talium situum limitatur, et ad tantum ac taliter se extendit hujusmodi aptitudo, ut perspectivi vere intelligunt, quod sit visionis judicium, ubi radius visualis concurrit cum catheto […].

Finally, Hus briefly divides authorities into two groups according to their stance on the issue. Whereas Peripatetics (Aristotle, Averroes, Alexander of Aphrodisias,

61 Iohannes Hus, *Quodlibet*, q. 56, p. 255–256.
62 Iohannes Wyclif, *Trialogus* II. 7, p. 98.
63 Iohannes Hus, *Quodlibet*, q. 56, p. 256.
64 Iohannes Wyclif, *Trialogus* II. 7, p. 97–98.
65 iudicium] indicium *ed. Ryba*

Avicenna and Albert the Great) favor intromission, extramission combined with intromission is proposed by Empedocles and Plato. This doxography may be inspired by the question on a similar topic included in the *quodlibet* by Matthias of Knín two years before, as Knín mentions the very same names in the *propositio* of his preparation[66]:

Iohannes Hus, *Quodlibet*, q. 56[67]	Matthias de Knin, *Quodlibet*, q. 114 (116)[68]
Aristotiles in *De sensu et sensato*, Comentator, Allexander, Albertus et Avicenna tenent, quod fit intus susci<pi>endo et non extramittendo. Empedocles, Plato et eorum multi sequaces tenent, quod fit intus suscipiendo et extramittendo.	Utrum visio facta sub piramide radiosa fiat intus suscipiendo vel extramittendo. Arguitur quod […] primum quesitum sit falsum, quia si visio sit extramittendo, igitur non intus suscipiendo. Antecedens patet <per> Empedoclem et Platonem et suos sequaces qui recitantur super libro de sensu et sensato […]. In oppositum […] pro veritate primi quesiti sunt Aristoteles in *De sensu et sensato*, Commentator, <Alexander, Albertus, Avicenna>[69] – igitur questio quantum ad suppositum et primum quesitum est vera.

Finally, Hus also prepared two brief arguments against the response agreeing with intromission. The second is apparently borrowed from Knín, who, in turn, renders an argument presented by Albert the Great. Comparison of these three variants of the same argument reveals how Albert's argument becomes more and more abbreviated (and less clear):

Iohannes Hus, *Quodlibet*, q. 56[70]	Matthias de Knin, *Quodlibet*, q. 114 (116)[71]	Albertus Magnus, *De sensu et sensato*, I, 6[72]
Concedenti, quod fit intus suscipiendo: […]. Item: Ad hoc, quod fiat visio, oportet, aut quod visus aliquid emittat agendo in visibile, aut quod visibile agat in visum; sed visibile non agit in visum; igitur etc.	Item ad hoc quod fiat visio, oportet aut quod visus aliquid emittat agendo in visibile aut quod visibile agat in visum. Sed visibile non agit in visum, nec in aliquid alterum, quia color est	Alia autem est ratio eorum quia viderunt quod **color non est qualitas activa** et immutativa per seipsam alicuius corporis, nec aliqua alia natura in visibile agit ad hoc quod per colorem immutet **corpora se tangentia**, quia si aliqua alia natura ageret in res

66 Knín might be inspired by Albert the Great's careful examination of the issue. See Albertus Magnus, "De sensu et sensato", in *Alberti Magni Opera Omnia*, vol. VII. 2a, ed. S. Donati, Münster, Aschendorff, 2017, I. 5, p. 26b–28b. Incidentally, the doxographical part of Hus's question was incorporated (almost word for word) into a later Prague question on the mechanism of vision (see Anonymus, *Utrum visio fit intus suscipiendo et non extra mittendo*, MS Prague, NK ČR, V H 13, fol. 236r).

67 Iohannes Hus, *Quodlibet*, q. 56, p. 256.

68 Matthias de Knin, *Quodlibet*, MS Prague, KMK, L 45, q. 114 (116), fol. 123r.

69 Alexander, Albertus, Avicenna] *coni.* Alexandri, Alberti, Avicenne *cod.* (For the meaning of the editorial abbreviations see the introduction to the edition below in Appendix II.)

70 Iohannes Hus, *Quodlibet*, q. 56, p. 256.

71 Matthias de Knin, *Quodlibet*, MS Prague, KMK, L 45, q. 114 (116), fol. 123r.

72 Albertus Magnus, *De sensu et sensato* I. 6, p. 29a.

	visibile et omne quod videtur, sub colore videtur, sed **color non est qualitas**[73] **activa** – alias **corpora** colorata, videlicet album et nigrum, **tangentia se**, ut fiunt colorata se intransmutarent – quod est falsum. Igitur visus emittendo agit in visibile.	visibiles, tunc transmutarentur ab esse suo, sicut faciunt ea quae transmutant calidum et frigidum. Color igitur secundum quod est color non agit in aliquid, nec medium igitur patitur ab eo nec organum visus. Non ergo fit visus intussuscipiendo actionem colorati visibilis, sed potius extramittendo radios […].

A more extensive examination of the optical issues discussed in the Prague quodlibets is beyond the range of this paper. Even the present sketch, however, reveals that perspectivist issues were quite popular in the quodlibets, and that in their preparations the *quodlibetarii* utilized not only almost all the important perspectivist texts (Simon of Tišnov), but also unexpected theological and philosophical sources popular among Bohemian masters (Wyclif used by Hus). Finally, the *quodlibetarii* also apparently exploited quodlibetal preparations by their former colleagues (as Hus's use of Knín suggests).

3. John of Borotín's *Quaestio* on the Mechanism of Vision

As already noted, the main problem one must face investigating the presence of optical issues in the Prague quodlibets is the specific nature of the extant written sources – almost all the optical questions are preserved only in the form of preparations gathered in the handbooks by *quodlibetarii* before the disputations themselves. This kind of source cannot reveal what the discussion was like, or which position the responding master held. There is however one exception – a *positio* (elaborated response to the question in written form) by the Czech master John of Borotín, who disputed a question on the mechanism of vision in the quodlibet by John Hus in 1411. The rest of this paper is devoted to Borotín, and to analysis of his question, which is also edited below (see Appendix II).

3.1 Borotín's Life and Works

John of Borotín was born in 1378, studied the arts at Prague University, and earned his bachelor's degree there in 1400 and master's in 1410. He then lectured and held several positions at the university for almost half of a century until his death (after 1458)[74]. As a fresh master of arts, he had still been attending university lectures in

73 qualitas] *coni.* quans *cod.*

74 Borotín was *dispensator* (1414 and 1416), dean of the Faculty of Arts (1415 and again 1432), examiner of bachelors (1417 and again 1450) and rector of the whole university (1425–1426). Initially, he was also *rector* of a minor school in Zderaz (in 1412). On his life and service to the university see J. Tříška, *Literární činnost předhusitské university* [Literary Work of the Pre-Hussite University], Praha, Universita Karlova, 1967, p. 166, 173; K. Beránek, "O počátcích pražské lékařské fakulty 1348–1622 [On the

the 1410s. This part of his career is well documented because he wrote down a series of lectures that he attended in his personal codex (today MS Prague, KMK, O 1), which is also useful for identifying Borotín's hand[75]. Evidently, he had a special interest in the astronomical disciplines. From the lecture reports and several dated first-person glosses it can be surmised that he attended a number of introductory lectures on astronomy in 1411: MS Prague, KMK, O 1 preserves an introductory text on *De utilitatibus astrolabii* by Christian of Prachatice (Křišťan z Prachatic in Czech, fols 37r–37v), an introduction to astronomy with a division of astronomical and astrological disciplines (38r–39r) and commentaries on *Sphaera materialis* (39v–45v) and *Theorica planetarum* (46r–47v, 49r–65r)[76]. Borotín then attended lectures on Thabit ibn Qurra's introduction to Ptolemy's *Almagest* (in 1412, fols 126r–129r) given by John Šindel (Iohannes Andreae Schindel), and Šindel's lectures on the *Almagest* itself (in 1413, fols 138r–161v)[77], as well as lectures on Alcabitius (in 1413, fols 72r–89v) and Alfraganus's *De differentiis* (in 1414, fols 181v–222r). Marginal glosses and introductory notes written in Borotín's hand indicate that he used these *reportationes* and excerpts several decades later when he was lecturing these texts[78].

Beginnings of the Prague Faculty of Medicine]", in *Acta Universitatis Carolinae – Historia Universitatis Carolinae Pragensis*, 9–2 (1968), p. 79; Šmahel, *Die Prager Universität im Mittelalter*, p. 146, 303–306; and esp. C. Burnett, "Teaching the Science of the Stars in Prague University in the Early Fifteenth Century: Master Johannes Borotin", in *Aithér*, 8 (2014), p. 19–24. On Borotín's works, see esp. Spunar, *Repertorium*, vol. I, p. 141–142 and Burnett, "Teaching"; also C. H. Lohr, "Medieval Latin Aristotle Commentaries Authors: Jacobus – Johannes Juff", in *Traditio*, 26 (1970), p. 158. The following passage includes several precisions and additions to Borotín's bibliography.

75 On the contents of the codex, see Patera, Podlaha, *Soupis rukopisů*, vol. II, p. 452–453; A. Hadravová, P. Hadrava, *Křišťan z Prachatic: Stavba a užití astrolábu* [Christian of Prachatice: Composition and Use of the Astrolabe], Praha, Filosofia, 2001, p. 77–78; and Burnett, "Teaching", p. 10–15. David Juste is preparing a new description of the codex. The codex is in large part Borotín's autograph, as recently argued by Burnett, "Teaching", esp. p. 11–13 (the main arguments are the notes in the first person, some of them including Borotín's name). Borotín's hand is idiosyncratic – wide, very cursive and not easy to read.

76 Traditionally, it was surmised that the text on fols 37r–65r is a copy of a text on the astrolabe (perhaps by Christian), because of a gloss on fol. 37r ("Principium in tractatum C[ristiani] De utilitatibus astrolabii 1411 […]") and a gloss on fol. 66r following this part of the codex ("1452 incepi legere Alkabicium fer<ia> tertia ante Ascensionem Domini ego M. Io<hannes de> Bo<rotin>"), where "Alkabicium" was read as "Astrolabium". See Patera, Podlaha, *Soupis rukopisů*, vol. II, p. 452; Burnett, "Teaching", p. 13–14 also seems to incline to it. This surmise was refuted by Hadravová, Hadrava, *Křišťan z Prachatic*, p. 77–78; who prepared editions of both *Compositio astrolabii* and *Usus astrolabii* by Christian (see Hadravová, Hadrava, *Křišťan z Prachatic*, p. 133–171, 201–281). A closer look at these passages reveals that the text is actually a series of different commentaries, as stated above.

77 On these texts, see D. Juste, "Johannes Andree Schindel, Lectures on Thebit Bencora's *De hiis que indigent expositione antequam legatur Almagesti*" (update: 30.03.2017), *Ptolemaeus Arabus et Latinus. Works*, accessible from: https://ptolemaeus.badw.de/work/120, and D. Juste, "Johannes Andree Schindel, Lectures on the *Almagest*" (update: 21.03.2017), *Ptolemaeus Arabus et Latinus. Works*, accessible from: https://ptolemaeus.badw.de/work/77. On Schindel (1370s – between 1455 and 1458), the famous Bohemian astronomer and probable designer of the Prague astronomical clock, see, e.g., Spunar, *Repertorium*, vol. I, p. 133–140 and the study by Alena Hadravová and Petr Hadrava in this volume.

78 This was pointed out by Burnett, "Teaching", for Borotín's lectures on Alcabitius.

In the 1410s, Borotín also participated as one of the responding masters in three quodlibetal disputations. He responded to a question on extramission and the mechanism of vision in John Hus's *quodlibet* in 1411[79], a question on mathematical disciplines and their principles in a *quodlibet* organized by Michael of Malenice called Čížek in 1412[80], and a question on the generation of stones and metals in Prokop of Kladruby's *quodlibet* in 1417[81].

Later, during his long career as a teacher, Borotín lectured on several books of natural philosophy, astronomy and medicine. Some of his commentaries are preserved – either as his own preparations for lectures or as marginal glosses in copies of the texts he lectured on, written down as *reportationes* by his students. In the 1420s he lectured on medical texts – on Hippocrates's *Aphorisms* (1424, Borotín's brief introduction is preserved in MS Prague, NK ČR, X H 23, fol. 49r) and *Isagoge Iohanitii* (1430, glosses in MS Prague, NK ČR, X H 16, fols 15r–20r) and later, on Aristotle's *Meteorology* (1433, glosses in MS Prague, NK ČR, VII E 9, fols 107r–174v)[82]. In the final part of his life, he focused mainly on astronomy and astrology, giving lectures on Ptolemy's *Quadripartitum* (1444, glosses in MS Cracow, BJ, 593)[83], Campanus of Novara's *Theorica planetarum* (1449, introductory notes in MS Prague, KMK, O 1, fols 129v–130r), Alfraganus's *De differentiis* (1450)[84] and on Alcabitius's *Introduction to Astrology* (in 1452 and 1454)[85]. Besides that, there are two undated commentaries written in Borotín's hand – a continuation of an exposition on the *Alfonsine tables* (MS Prague, KMK, O 1, fols 114r–115v) and a commentary on Euclid's *Elements* (MS

79 *Utrum sensationes fiunt per extramissiones virtutum ab organis sensitivis*, preserved in MS Prague, NK ČR, X H 18, fols 58r–61r and analyzed and edited below.

80 *Utrum omne principium mathematicae, cuius obiectum primarium est quantitas, sit necessarium*, preserved also in MS Prague, NK ČR, X H 18, fols 94v–101v.

81 *Utrum lapides et metalla generari in nubibus sit possibile quemadmodum in visceribus terre* – Borotín's position is not extant, there is only the *quodlibetarius* Prokop's preparation in MS Prague, KMK, L 27, fols 40v–41r (on which see also Kocánová, "The Sublunary Phaenomena", p. 94–95).

82 There is also a note in MS Prague, KMK, O 1, fol. 222v (basically several paragraphs on the issue of why some regions are uninhabitable), the title of which suggests Borotín lectured on *Meteorology* as early as 1420: "1420 circa leccionem *Metheororum* M<agistri> J<ohannis de> B<orotin>."

83 The codex is described by M. Kowalczyk et al., *Catalogus*, vol. IV, p. 144–148 and D. Juste, "MS Cracow, Biblioteka Jagiellońska, 593" (update: 25.02.2017), *Ptolemaeus Arabus et Latinus. Manuscripts*, accessible from: https://ptolemaeus.badw.de/ms/182.

84 There is testimony that Borotín lectured on Alfraganus in a list of university lectures preserved in the rear endpaper in MS Prague, KMK, L 43 (and transcribed in Tříška, *Literární činnost*, p. 173): "Item Iohannes Borotin eodem anno [=1450] legit Alfraganum De differentiis; incepit f. III^{a} ante Zophie." No commentary is extant; however, Borotín might have based his teaching on the lectures he attended in 1414 and wrote down in MS Prague, KMK, O 1.

85 Borotín started to lecture on Alcabitius in 1452 (see MS Prague, KMK, O 1, fol. 66r) but apparently changed his mind – see MS Prague, KMK, O 1, fol. 66r: "Et dicenda minori<bu>s sunt minora verba divi – dicamus igitur aliquid minori pro intelligendo isto libro [...]. Et quia iste liber subservit astronomie, cum sit introductorius in iudicia astrorum, aliquid igitur pro noticia astronomie hic dicemus ante omnia et post hoc incipiemus istum librum dei auxilio." He then lectured on Alcabitius again in 1454. See his preamble in O.1, fols 130r–v (edited by Burnett, "Teaching", p. 26–27), where he mentions that he had lectured on the book before but stopped (Burnett, "Teaching", p. 26, §3). The preamble ends with a cross-reference to fol. 72r, where the commentary written in 1413 starts, indicating that Borotín lectured on Alcabitius in 1454 according to his student notes from 1413.

Prague, KMK, O 1, fols 165r–178r; with a long borrowing from Alan of Lille's *Anticlaudianus* III on geometry in the introduction). There are also mentions of Borotín's lectures on plague (*de pestilentia*) and of him as an expert on *computus*[86].

Borotín was evidently engaged in the quadrivium or mathematical disciplines in the broad sense, mainly in astronomy. However, does *perspectiva* have a special place in his thinking? It does not seem so. E.g. in the commentary glosses to *Meteorology* ascribed to him, the glosses to book III (a traditional place for investigating optical phenomena, such as the rainbow) are rare and short, and serve merely as explanations of difficult expressions[87]. Although he presented several methodological remarks about *perspectiva* in the question on mathematical principles disputed in Čížek's *quodlibet*[88], the most evident influence of the optical tradition is to be found in his earliest text, the question on the mechanism of vision disputed in Hus's *quodlibet*.

3.2 *Utrum sensationes*: Two Versions of the Text

The final redaction of Borotín's question *Utrum sensationes* (preserved in Prague, NK ČR, X H 18 and edited below in Appendix II)[89] consists of a brief *propositio* (§1–3) with basic arguments *pro* and *contra* and *problema*, a section including *notabilia* where Borotín investigates all the terms included in the title of the question (§5–28), and finally a section with conclusions and corollaries where Borotín's stance is presented (§29–39). The text itself does not contain any information concerning its authorship. Nevertheless, the title of the question matches the one included in John Hus's handbook, and the *propositio* section is copied from Hus's preparation *verbatim*. Moreover, since Hus ascribes the question to John of Borotín and calls him "a new Avicenna," referring to Borotín's skills in medicine and optics[90], there is no doubt that the author of the position in MS Prague, NK ČR, X H 18 is John of Borotín.

The text as preserved in MS Prague, NK ČR, X H 18 has a slightly more complicated structure. In the first place, the part of the codex under discussion includes *two* versions of Borotín's question. The first redaction is shorter and sketchier, con-

86 See Spunar, *Repertorium*, vol. I, p. 42.

87 See Iohannes de Borotín, *Epitome Meteorologicorum Aristotelis*, MS Prague, NK ČR, VII E 9, fols 152v–161r (book III) and especially tractatus 2 on fols 154r–161r which is "de passionibus causatis ex refraccione radiorum solis aut lune" (fol. 152v, in mg.). Glosses explain terms for optical atmospheric phenomena such as the halo, parhelia etc. On fol. 157r a gloss points out that Aristotle speaks about vision as if it were by extramission ("Perloquitur de visu quod sit extramittendo." See also note 124 below.). Several diagrams are included, e.g. the origin of the halo (155v), the colors of rainbow (158r) and its origin (159r, 159v, 160r).

88 Here, Borotín explains in what sense *perspectiva* is subordinated to geometry. See Iohannes de Borotín, *Utrum omne principium*, MS Prague, NK ČR, X H 18, fol. 97v.

89 For reference, I use the paragraph numbers of the edition.

90 Iohannes Hus, *Quodlibet*, q. 56, p. 255: "Hanc autem difficultatem venerandus Magister noster, Magister Io<hannes> de B<orotin>, cum sit preclarus perspectivus et medicus, velud Avicenna alius, nostro auditorio declarabit."; Iohannes Hus, *Quodlibet*, p. 281: "Illic Iohannes Borotyn, ut Avicenna, sensaciones, qualiter fiunt intus suscipiendo et extramittendo, cum ceteris difficultatibus conpendiosissime declarabat."

taining many crossed phrases, interlinear and marginal glosses, and consisting only of *notabilia*. It is written on a single bifolio; however, due to binding, the text is on the folios both before and after the second version (fols 57r–57v, 62r–62v)[91]. The second version seems complete, as it includes not only *notabilia* but also conclusions and corollaries. There are also fewer cross-outs and glosses. After the text of the second version, there are several notes in the manuscript. As they relate to the main text (as argued below), I involve them in the edition (§40–43). The hand of the scribe is very cursive and, importantly, is the same for all the texts mentioned.

There are several indications which suggest that the exemplar of Borotín's question preserved in MS Prague, NK ČR, X H 18 is an autograph. The first (albeit not particularly persuasive) indication is that the hand of the scribe of *Utrum sensationes* is very similar to Borotín's handwriting preserved in MS Prague, KMK, O 1. Secondly, another question *Utrum omne principium mathematicae*, disputed by Borotín in the following year, is preserved in the same codex and shares both the idiosyncratic hand and complicated structure typical of *Utrum sensationes*. It also includes the beginning of the question, with *propositio* and first *notabile* (Prague, NK ČR, X H 18, fol. 94v) and then another version of the beginning with an additional division (95r). Further, there are *notabilia*, conclusions and corollaries (95r–99v); and the final version of the question is again followed by what can be considered preparatory notes that mirror the structure of the question itself (100r–101v). It is possible that two quires with Borotín's personal writings were bound (with many other disputed questions) into this collected volume.

The most persuasive reason for declaring *Utrum sensationes* an autograph, however, is a comparison of the two versions of the question. This comparison suggests that the scribe had worked extensively on the text, adding new parts and rearranging the old ones, refining the style, etc. Sometimes, too, a marginal gloss in the first version is extended and becomes a part of the main text in the second. All of this suggests that the scribe is identical to the author. The comparison reveals that the first version functions as preparatory notes for the second version, which is in turn carefully constructed as a final version of the text.

Sometimes Borotín changes the preparatory text because he finds a more suitable authority. For example, defining the term *virtus* (the soul's capacity to perform an action, e.g. a cognitive one), the preparatory version refers to Aristotle's definition of *virtus* as a habit that perfects and renders good both its bearer and his deeds, and identifies *virtus* with *spiritus*, understood physiologically with Avicenna as a "subtle vapour" (fol. 57v). These are not, however, particularly convenient definitions when the *virtus* in dispute is a power of soul as Aristotle's definition relates rather to a moral or intellectual virtue, whereas Avicenna is talking about the physiological vehicle which is behind the workings of the power. Borotín was aware of this unsuitability, and in the final version, he proposes an entirely different definition which he borrowed from Bartholomaeus Anglicus: power is an essential attri-

91 For a more detailed description of this part of MS Prague, NK ČR, X H 18 and more information about the gatherings see Appendix I.

bute of the soul by means of which the soul performs its actions in the body (§14). Nevertheless, Borotín still found Aristotle's definition worth mentioning, and thus he put it after the final version of the question as an additional remark (§40), where he applies Aristotle's definition of virtue to the case of the soul's power, stressing that sensory power renders the workings of body perfect and good.

Preparatory notes fol. 57v	Final version fol. 58v = §14	Additional note fol. 61r = §40
Dixi 3° quod ad sensacionem requiritur virtus.	Dixi 3° quod ad sensacionem requiritur virtus que est causa efficiens sensacionis, ut dicit Constantinus in *Pantegni*.	
Unde virtus[92] – licet apud philosophos multipliciter accipitur, tamen pro presenti materia	Unde ly "virtus" apud philosophos multipliciter accipitur; in presenti tamen materia summitur virtus pro quadam potencia anime per quam ipsa suas operaciones exercet in corpore et describendum sic:	
potest sic describi: "virtus naturalis[93] est habitus[94], que habentem se perficit et opus eius bonum reddit,[95]" ut dicit Philosophus *Ethicorum*; vel potest dici spiritus, qui – ut dicit Avicenna I° *Canonis*, fen I[a] – est vapor subtilis ex sanguine resolutus ad totum corpus multiplicatus[96].	"Virtus est potencia anime ei essencialiter attributa ad suas peragendas in corpore acciones, nam mediante hac virtute anima corpus vivificat, cor et arterias constringit continue et dilatat, sensum et motum voluntarium omni animato corpori administrat, ut dicit idem Constantinus libro 13 in *Pantegni*[97]."	Virtus, ut dicit Philosophus 2° *Ethicorum*, est que habentem se perficit et opus eius […] bonum reddit; […]. Sic eque virtus sensitivi corporis opus corporis sensitivi perficit et reddit bonum in suo genere; talis autem virtus est triplex – scilicet naturalis, vitalis et animalis. Vide in questione, si placet.

Extensive borrowing from Bartholomaeus Anglicus's *De proprietatibus rerum* is a distinctive feature of the final version of Borotín's question in general. The definitions of *virtutes* (see below) in Borotín's preparatory notes, for example, are rather brief (fol. 57v), while the same passage in the final version is detailed and consists above all of borrowings from Bartholomaeus (see §15–21). It seems that Borotín discovered the usefulness of Bartholomaeus's encyclopedia for his purposes after he had already written the major part of his preparatory notes. Tacit borrowings from Bartholomaeus, although numerous in the final version, are completely absent from the preparatory notes. Sometimes it seems that Borotín realized he could improve his text with a quotation from Bartholomaeus while finalizing it. For ex-

92 virtus] sic describitur *add. sed del.*
93 naturalis] *suprascr.*
94 habitus] *suprascr.*
95 Aristoteles, *Ethica Nicomachea* II, 5, 1106a15–24.
96 Possibly Avicenna, *Liber canonis*, Basel, Johannes Herwagen, 1556, I. 1, 6, 4, fols 49–50.
97 Bartholomaeus Anglicus, *De proprietatibus rerum*, vol. I: Prohemium, Libri I–IV, eds. B. Van den Abeele, H. Meyer, M. W. Twomey, B. Roling, R. J. Long, Turhnout, Brepols, 2007 [hereafter abbreviated as *DPR* I–IV], III. 14, p. 162.

ample, he excerpted a short passage on saliva and its role in the sense of taste from Bartholomaeus and placed it after the whole text of the preparatory notes (fol. 62v). Then, writing the final version and discussing the object of taste, he notes that what is perceptible to the sense of taste must be humid and adds a quotation from Aristotle's *De anima*. He might, however, have recollected the excerpt on saliva, crossed out Aristotle's saying, added these several lines on saliva from Bartholomaeus and, finally, added Aristotle's *dictum* again after that (see §25).

The claim that the scribe of the text may be the author himself is further confirmed by notes appended to the final version of the text (§40–43). At least some of these seem to be an outcome of a rereading and rethinking of the final version carried out by the author himself. The corollary to the first conclusion (§30), for example, states that the sensible *per se* does not bring about the sensation. To give precision to this statement, he later adds what "per se" means here: he superscribed "secundum esse reale", making clear that the statement pertains only to the sensible in its real being. Nevertheless, the distinction between the real and intentional being of the sensible, no matter how common in the medieval philosophical literature, had not previously been introduced in the text. He therefore adds a marginal gloss "hic nota" to this place, which is most likely a cross-reference to one of the notes after the text (see §43). Here, on fol. 61v, the marginal "hic" appears again next to the text that begins "nota […]", and explains the distinction between *esse reale* and *esse intentionale*.

In the corollary to the fourth conclusion (§37), Borotín introduces the notion of the visual cone. He says that there is both a cone constituted by *species* multiplied from the sensible object and a cone constituted by *species* of the eye emitted from the eye (on the doctrine, see below). At the end of the corollary, however, Borotín speaks about *three* cones. This seeming mistake can be explained if one has Bartholomaeus's text in mind. In his discussion of vision, Bartholomaeus introduced the third cone. Besides the two cones from the object and the eye, there is a further cone of light. Borotín also had this passage on the necessity of light for vision in mind, which is proven by the fact that he includes it among the notes after the question (see §42).

These examples reveal that the question *Utrum sensationes*, as preserved in MS Prague, NK ČR, X H 18, is a genuine work-in-progress, its two versions representing two stages of the text formation, as the former includes many notes which in the latter were carefully elaborated, edited and refined by a scribe who, in all probability, is to be identified with the author himself.

3.3 *Utrum sensationes*: Borotín's Sources

At first sight, Borotín's question appears to be quite revealing regarding its sources. There are numerous explicit references, mainly to Aristotle (10×), Constantine the African and his *Pantegni* (8×), and Peckham (or "auctor *Perspective communis*" – 6×). It is however unclear to what extent, or even whether, Borotín worked with the actual texts of these authors (at least in the case of Aristotle and Constantine). Tracing Borotín's references reveals a considerable discrepancy between who is explicitly referred to, and from whom the passage is borrowed (see the table below). When the actual borrowings are considered, Borotín's most prominent source is –

perhaps surprisingly – Bartholomaeus Anglicus and his encyclopedia *De proprietatibus rerum* (especially book III on human psychology)[98]. Although almost never indicated, there are no less than twenty-three borrowings from Bartholomaeus, some of them quite extensive[99].

Sometimes Borotín uses Bartholomaues as a source for other authors' positions. It is highly probable that Borotín did *not* work with Constantine's *Pantegni*, Calcidius's commentary to Plato's *Timaeus*, or Aristotle's *De animalibus*. Although he names these works several times, in all cases either the reference to them is a part of a literal borrowing from Bartholomaeus (hence, it seems as if he quoted from these authors themselves – see, e.g., §14, 15, 20, 38)[100], or Borotín deliberately ascribes quotations from Bartholomaeus to another, perhaps more eminent authority (especially to Constantine, as in §19, 25, or 27)[101].

Nevertheless, it is very likely that Borotín had copies of two other sources before his eyes – Peckham's optical textbook *Perspectiva communis* and Galen's compendium *De locis affectis* (referred to by him as *De interioribus*). In the case of Peckham, Borotín refers to specific propositions using correct numbering, and often quotes them literally (see §8, 10, 36, 41); sometimes he also accepts and rephrases Peckham's doctrine (see §32). The three quotations of Galen's *De interioribus* are less accurate, but at least one of them is still traceable (see §18)[102].

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98 Bartholomaeus's encyclopedia (finished about 1240 in Saxony) was apparently popular in the Bohemian Lands. H. Meyer, *Die Enzyklopädie des Bartholomäus Anglicus: Untersuchungen zur Überlieferungs- und Rezeptionsgeschichte von 'De Proprietatibus Rerum'*, München, Wilhelm Fink Verlag, 2000, lists six codices which preserve an original Latin version (p. 99–101) and two other redactions or compilations (p. 171, 177) now kept in Prague libraries, all from the fourteenth or fifteenth century and most of them of Czech origin. Two copies of Bartholomaeus are also mentioned in late medieval catalogs of Prague University libraries. See *Catalogi librorum vetustissimi Universitatis Pragensis*, p. 127 (N I: Q48, Q49). Later in the fifteenth century, Paul Žídek used Bartholomaeus for his own encyclopedia. See A. Hadravová, *Kniha dvacatera umění mistra Pavla Žídka: část přírodovědná* [Master Paul Žídek's Book of Twenty Arts. The Natural Sciences Part], Praha, Academia, 2008, p. 47–48.

99 There is one unwitting reference to Bartholomaeus's text in §21 of Borotín's *quaestio*. Borotín, introducing three kinds of bodily spirit, compiles this paragraph out of excerpts from chapter III, 22 of Bartholomaeus's encyclopedia. Having tacitly borrowed Bartholomaeus's claim that the spirit is generated in the liver, Borotín avoids summarizing Bartholomaeus's scrupulous exposition of the propagation of *spiritus* through other organs by reference (where "post presentem" means "after the just quoted passage from Bartholomaeus") to his source: "Quaere post presentem de generacione huius spiritus."

100 Hence, Borotín's reference to Calcidius in §20 cannot unfortunately be used as further evidence for the dissemination and popularity of his commentary to Plato's *Timaeus* among Bohemian masters around 1400. On Platonist influences on Prague University masters see, e.g., E. Jeauneau, "Plato apud Bohemos", in *Mediaeval Studies*, 41 (1979), p. 161–214, esp. p. 162–168; Herold, *Pražská univerzita a Wyclif*, p. 230–231; or Pavlíček, "Wyclif's Early Reception", who listed numerous borrowings in the works by Borotín's contemporary Jerome of Prague (p. 100, 113).

101 Such a practice might have been common among Bohemian scholars. Use of Bartholomaeus's encyclopedia is proven in the Czech lexicographer Claret (Bartholomaeus de Solencia in Latin, Bartoloměj z Chlumce in Czech) a half-century before Borotín. See, e.g., A. Vidmanová, "Mistr Klaret a jeho spisy [Master Claret and His Writings]", in *Listy filologické*, 103–4 (1980), p. 221.

102 Borotín probably used a copy of Galen when working on his preparatory notes, whereas he prepared the final version without further reference to it. When discussing the faculty of movement (*virtus*

Source	Explicit references	Actual borrowings (as identified in the edition below)
Bartholomaeus Anglicus, *De proprietatibus rerum*	–	23
Aristotle (various works)	10	8
Peckham, *Perspectiva communis*	6	6
Averroes (various works)	2	3
Galenus, *De interioribus*	3	3 (?)
Constantinus Africanus (*Pantegni* or unspecified work)	8	1 (?)
Calcidius, *Super Timaeum*	1	–

Sometimes Borotín uses terminology or phrases from Buridanian *De anima* commentaries; this terminology, however, was so common that it is impossible to trace his exact sources (see, e.g., §27, 35). Further, he introduces an argument very similar to one proposed by John of Jandun in his *De sensu* commentary (see §35 and the respective note). Borotín might have had access to Jandun's works[103], although Jandun's argument might also have become a part of later tradition and Borotín could have encounter it in another work. Also, the definition of sensation that Borotín incidentally added in the margin at the beginning of the *notabilia* section may be borrowed from 10th-century Jewish philosopher Isaac Israeli (see §7).

Finally, there is no link between the quodlibetal preparation by Hus and Borotín's *positio* except the fact that the *propositio* of Hus's preparation and Borotín's question (in both preliminary and final versions) are identical[104]. Borotín, however, neither addresses any of Hus's arguments nor makes any indication that he was acquainted with Hus's preparation for disputation. The explanation suggesting itself is that Borotín received the *propositio* before the quodlibetal disputation, prepared a written determination of the question which he then presented during the ses-

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motiva), Borotín mentions Galen's example of a patient hit in his spine, whose three fingers lost the capability to move while they remained able to feel (see §18). Nevertheless, Galen described precisely the opposite case: the patient lost the sense in his fingers, but could move them (Galenus, "De interioribus", in *Quarta impressio ornatissima continens omnes Galeni libros*, ed. Rusticus Placentinus, Pavia, De Burgofranco, 1515, I. 6, vol. II, fol. 27rb: "[…] dixit sensum digitorum a triginta diebus esse ablatum, motus vero digitorum permansit […]."). Interestingly, Borotín rephrased Galen correctly in the preparatory notes (see fol. 62r: "[…] narrat Galenus I° *De interioribus* de quodam homine, qui amiserat sensum in tribus digitis, motum tamen non amisit.") but adjusted this example in the final version. Borotín's acquaintance with the so-called "new Galen" may be considered a further proof of his connection to the Faculty of Medicine, which is sometimes suggested but founded only on indirect evidence. See Beránek, "O počátcích", p. 79; Šmahel, *Die Prager Universität im Mittelalter*, p. 146.

103 The notes on *De anima* written in Borotín's hand preceding the *quaestio* encompass a variant of Jandun's theory of two substantial forms of the human being, namely, cogitative and intellective soul. Compare MS Prague, NK ČR, X H 18, fol. 56v with Iohannes de Ianduno, *Super libros Aristotelis de Anima subtilissimae quaestiones*, Venice, Hieronymus Scotus, 1552, fol. 71ra. On Borotín's notes on the human intellect, see Appendix I. Jandun's commentary on *De anima* is also mentioned in the catalogs of Prague University libraries; see *Catalogi librorum vetustissimi Universitatis Pragensis*, p. 40 (shelfmark R II: G27), p. 139 (shelfmark N II: D18).

104 Compare §1–3 in the edition (and the beginning of Borotín's preparatory notes in MS Prague, NK ČR, X H 18, fol. 57r) with Hus's preparation in Hus, *Quodlibet*, q. 56, p. 255.

sion. His question as preserved in MS Prague, NK ČR, X H 18 originated *before* the session itself, as it does not seem to reflect either Hus's preparation or the discussion that probably followed Borotín's performance[105]. Further, it is also uncertain whether Borotín read his *positio* in its entirety during the session, as it is quite long (and a little tedious in its *notabilia* section) and 54 masters were responding to a question in Hus's *quodlibet* that lasted only a couple of days[106]. Hus noted at the end of his handbook that Borotín responded very concisely (*conpendiosissime*)[107].

Nevertheless, another interpretation is possible. Borotín might have presented his preliminary version of the text, which includes merely the *notabilia*; in other words, he might just have explained the meanings of all the words employed in the title of the question. Only after the discussion with Hus, might he have prepared the final version of the question intended for distribution, where he takes the syncretic position connecting intromissionist and extramissionist accounts of perception, paying homage not only to Peckham but also to Wyclif, the source of Hus's preparation. The issue of the exact shape of the Prague quodlibetal disputations remains undecided[108].

3.4 Borotín's Position in the Dispute over the Mechanism of Vision

Once textual issues and Borotín's sources have been investigated, the doctrinal aspects of the question can be scrutinized. The question asks "whether sensations occur by the [sensory] powers being emitted out of the sensitive organs" (*Utrum sensationes fiunt per extramissiones virtutum ab organis sensitivis*) and is thus devoted to the issue of what the mechanism of vision is. This issue arose even in Ancient philosophy and science, and was still popular in the Latin Middle Ages. As pre-modern optics concerned not only the physics of light but also the physiology and psychology of seeing, it became one of the crucial questions investigated in optical science. The history of pre-modern optics is often narrated as a clash between two competing answers to this issue, i.e. intromission and extramission. Some authors (such as Democritus or Aristotle) proposed an intromissionist explanation of the visual mechanism as they claimed that we see by receiving an entity in our sight. For Aristotle, for example, such an entity is a causal effect of the quality (color) of the external object (*eidos* or *species*) that first actualizes the medium between the object and the observer, and then the observer's power of sight. Other authors (such as Plato, Euclid or Galen) favoured the extramissionist explanation of vision: our sight must issue forth or emit an entity in order to see. Such an entity is a visual

105 In his pivotal book on Prague quodlibets, Jiří Kejř argues that such was a common practice. According to *Liber decanorum*, the *quodlibetarius* had to deliver the topic of the question to every responding master three or four days before the session (see Kejř, *Kvodlibetní disputace*, p. 28); extant *positiones* of various masters reflect neither the actual discussion (Kejř, *Kvodlibetní disputace*, p. 62–63) nor the *quodlibetarius*'s preparation (except in just one case, see Kejř, *Kvodlibetní disputace*, p. 67–68).

106 Kejř, *Kvodlibetní disputace*, p. 92.

107 See quotation in note 90.

108 I thank Ota Pavlíček, who prepares an up-to-date study on the processual aspect of Prague quodlibetal disputations, for his insights into the matter.

ray of fire or light nature for Platonists or Euclidians; for Galenists, it is a visual spirit or *pneuma*[109].

Sometimes historians argue that the dispute was settled as early as in the eleventh century by the Muslim scientist Alhacen, who united all the traditions and elaborated a powerful explanatory optical paradigm based on intromission and denying extramission[110]. Nevertheless, some Latin perspectivists of the thirteenth century (esp. Roger Bacon and John Peckham), although heavily influenced by Alhacen and proposing intromission, still made room for extramission[111]. The question of intromission and extramission had therefore not been answered once and for all for Latin medieval scholars. It has the status of a *problema* (an unsettled issue where both positions are equally attractive), and was thus ideal for quodlibetal disputations – and as pointed out above, a question on extramission vs intromission was included in almost every Prague *quodlibet*.

Responding to the question given to him by Hus, Borotín chooses what is called by his contemporary Zdeněk of Labouň the "ancient way" (*modus antiquus*), i.e. to first define all of the terms included in the title of the question (rather than to divide the response into a series of articles, which is the *modus modernus*)[112]. In terms of word count, this *notabilia* section is the longest as it occupies c. 58% of the text (whereas the section with conclusions occupies only c. 26% and the additional notes only 14%). Further, Borotín is sometimes verbose in the *notabilia*. He seems to forget that the question is restricted only to the *visual* power and adds more information about faculty psychology in general, or organs and media of all the senses, which eventually turns the *notabilia* section into a general introduction to the theory of the sensitive soul and its operations.

In the *notabilia* section, there is a palpable tension between Aristotelian influence and the more Platonizing tendencies delivered by Bartholomaeus Anglicus (whose encyclopedia predates the broad dissemination of Aristotle's psychology after c. 1240s and hence still bears the seal of the twelfth-century Platonic- and Galenic-oriented philosophy)[113]. Sometimes, Borotín tries to assume a compromise position; sometimes he sides with Bartholomew. For example, Borotín follows Aristotle's lead when he defines what sensory perception (*sensatio*) amounts to be. The sensation is a kind of apprehension realized when a *species* (i.e. a similitude) of the object is impressed on a sense (§5). The *species* is a sensible accidental form of the object (e.g. color); however, it is abstracted from the material realization that it has when inhering in the object. In this frame, Borotín also introduces the famous Aristotelian analogy with wax and

109 For the dispute among Ancient thinkers, see Lindberg, *Theories of Vision*, p. 1–17 and Smith, *From Sight to Light*, p. 23–75.

110 E.g. Lindberg, *Theories of Vision*, p. 58–86, esp. 85–86.

111 See Lindberg, *Theories of Vision*, p. 107–121 or Smith, *From Sight to Light*, p. 256–273.

112 Zdenko de Labun, *Questio astronomicalis*, §3, p. 135 : "[…] respondeatur secundum modum antiquum, videlicet simpliciter declarando ea, que ponuntur in titulo questionis, sine hoc, quod questio ipsa in multos articulos distingwatur, qui est modus modernus."

113 R. J. Long, the editor of book III of *DPR*, stresses the influence of the pseudo-Augustinian work *De spiritu et anima* and also medical tradition, esp. Constantine the African. See Bartholomaeus, *DPR*, p. 139–142.

seal (§7). He does not, though, seem to agree with more Aristotelian-minded thinkers in reducing the sensation to a passive reception of *species* (although he mentions this Aristotelian position in §7). Influenced by Bartholomew, he acknowledges the more Platonic view that the efficient cause of the sensory act is the sensory soul (or its power) itself (§12, 14)[114]. An apparent conflict between these two views is resolved by distinguishing between (principal) efficient causality and an instrumental one. The sensation is apprehension effectuated by *both* the *species* (as the instrumental cause) *and* the sensory power (as the efficient cause) (§5).

Another example is the issue of the nature of eye, concerning which there was a debate between Aristotelians and Platonists. On the one hand, Aristotelians proposing intromission stressed the ability of the eye-jelly to receive impressions, inferred that it must be easily malleable and concluded that eyes are of a watery nature[115]. On the other hand, Platonists surmised that eyes are of an igneous nature and that their inner light or spirit may emit forth. A fiery nature is also ascribed to the eyes by Bartholomaeus Anglicus[116]. Borotín admits that – insofar as its ability to receive impressions is considered – the eye may be called watery, but its proper nature is different. Borotín wants to assign one element to each of the senses – and as the organ of hearing is airy, that of taste is watery, that of smell is fiery, and that of touch is dominated by the element earth (§9), the element which remains for vision is the aether[117]. Borotín's statement is not to be pushed too far (and read as an ascription of a special celestial nature to the eyes); he simply wants to emphasize that the eyes have a sort of natural light which participates somehow (see below) in the visual process. He supports this claim by reference to Peckham's *Perspectiva communis* (§8)[118]. Later in the additional notes (§41), Borotín repeats that eyes are of an aetherous nature and compares them to celestial bodies. Just as some stars are warmer and have stronger rays while others have only diminished light, so various animals have visual powers of different strengths. Borotín concludes that some animals have eyes with more natural light than humans, and are able to emit stronger visual rays, which is supported by popular extramissionist anecdotes (also mentioned by Peckham) – cats or wolves allegedly see in darkness, and the lynx is even able to see through walls[119].

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114 See esp. Bartholomaeus, *DPR* III, 17, p. 167 (for vision); 18, p. 172 (hearing); 19, p. 174 (smell); 20, p. 176 (taste); 21, p. 178 (touch). The ascription of a causal role to the soul's power is typical of the Platonic and Galenic tradition. See, e.g., William of Conches, *Glosae super Platonem*, ed. E. A. Jeauneau, Turnhout, Brepols, 2006, II, 148, p. 267 or Constantinus Africanus, "Pantegni", in Ysaac, *Omnia opera*, 2 vols, Lyon, 1515, vol. II, fols 1ra–144ra, here *Theorica* IV. 10, fol. 17ra.

115 See Aristoteles, *De sensu* 2 where he criticizes his predecessors and states his position.

116 Bartholomaeus, *DPR* III, 17, p. 167: "Sensus igitur visus, cum sit igneus, est simplicissimus […]."

117 Such a matching of elements and sensory organs has a long tradition in pre-modern philosophy. See, e.g., Augustinus, *De Genesi ad litteram libri duodecim*, ed. J. Zycha, Prag / Wien / Leipzig, F. Tempsky, 1894, III. 4, p. 66–67 who, however, assigns a fiery nature to sight. Aether was regarded as a special fifth element of a very subtle, fiery and crystalline nature, located above normal air and a constituent of celestial spheres.

118 Peckham, *Perspectiva communis* I, 46 (49), p. 128–130. However, Peckham does not explicitly assign an aetherous nature to the eyes; he seems to accept the Aristotelian position about their watery nature. Cf. Peckham, *Perspectiva communis* I, 31 (34), p. 112.

119 Cf. Peckham, *Perspectiva communis* I, 46 (49), p. 128–130; 51 (54), p. 132.

Another example from the *notabilia* section of Borotín siding with medical authors rather than Aristotelians is his classification of the soul's powers (*virtutes*). While the fundamental division for Aristotelians is into vegetative, sensory and rational faculties, Borotín introduces a Galenic division which can be found in Constantinus, and which he borrows from Bartholomaeus Anglicus. There are three basic powers (§14–20): (1) natural power (*virtus naturalis*), responsible for the vegetative functions of the body; (2) vital power (*virtus vitalis*) which brings life to the individual body; and animal power (*virtus animalis*), responsible for cognitive functions and locomotion. All of these powers are embodied. Natural power originates from the liver, vital power has its seat in the heart and is diffused by the arteries throughout the body, and animal power is seated in the brain. Borotín also borrows the medical notion of *spiritus* (§21) which is a subtle matter diffused through the body which, in Platonic thinking, plays the role of mediator between the immaterial soul and material body. There are three kinds of *spiritus* corresponding to the three powers (natural, vital and animal).

In a brief but important remark closing his exposition of powers and *spiritus* (§21), Borotín qualifies the meaning of the term "extramission" included in the title of the question. In his view, what is emitted is not a body of a luminous or fiery nature (e.g. a ray of inner light, as Platonists would maintain), but precisely these powers, namely, the sensitive ones. As will become obvious in the conclusions, such a qualification enables Borotín to hold a compromise position between intromission and extramission.

The influences of the three sources quoted most frequently by Borotín – Bartholomew's encyclopedia, Aristotle, and Peckham's *Perspectiva communis* – are not present equally in all the sections. As pointed out, Bartholomew's domain is the *notabilia* section, whereas Aristotle's and Peckham's influences are more evident in the section with conclusions. Responding to the central issue of the text – whether vision is by extramission – Borotín continues to balance between opposing authorities.

Initially, he proposes a version of an Aristotelian intromissionist account of vision. He begins with an evident intuition that every sensation is *in* its proper sensory organ (conclusion 1, §29) and not outside of it, as the extramissionists seem to imply. This intuition is corroborated not only by Aristotle's authority in *De sensu* but also by reasoning: if the efficient cause of the sensory act is the sensory power – and Borotín (under Bartholomew's influence) agrees with this – then since the power is in the organ, its effect is in the same place.

However, the sensible object *itself* is not present and efficacious in the sensory organ as seeing a green color, the eye does not actually become green. Borotín states this in the corollary (§30), and solves the problem by the Aristotelian distinction between the real and intentional being of the sensible (he adds the proper expression of the distinction as an additional note after the text, as pointed out above – see §43). Every sensible object can thus replicate (or, in perspectivist terminology, "multiply") its causal effects through the medium. These effects are the so-called *species*, i.e. similitudes having mere intentional being (concl. 2, §31).

The question remains as to how the presence of the seen object in the eyes (its *repraesentatio*) is provided. Does it occur by extramission of the powers towards

the objects or by receiving their *species* in the senses? Borotín uses this dilemma to argue against extramission in a way influenced by Peckham[120]. If extramission were the case, then the power would not only issue from the eye, reach the object and stop there. As the sensation occurs *in* the organs, the power would have to return to the eye and "announce" the object to it. Such a conception is however absurd. Emitted powers would have to be animated, even rational and capable of voluntary movements, as they would go forth and return. Therefore, intromission appears to be a better option. Sensation occurs by *species* of the objects, multiplied through the medium and impressed in the eyes, which in turn cause the acts of sensation (concl. 3, §34). Additionally, every power whose operation is immanent (i.e. which produces nothing besides itself) is actualized only if it receives something from outside. The extramissionist explanation of vision would lead to a counter-intuitive conception of vision: the visual power would always be actualized (and never in potentiality), and its operation would not be immanent (§35). Intromission is thus a more plausible way to explain the mechanism of vision.

Borotín's response could end right after conclusion 3. In that case, his position would amount to an Aristotelian intromissionist account of vision. However, he adds another conclusion which – perhaps surprisingly – rehabilitates extramission. Such a move would be unexpected, if it were not anticipated by the perspectivists of the thirteenth century, namely by John Peckham who is Borotín's direct source here. Extramission is introduced not as a single explanation of vision but in a way trying to make it compatible with intromission. In other words, Borotín (like Peckham) does not want to assert that extramission is the *primary* mechanism of vision, although it is somehow involved in a process which is generally intromissionist.

Borotín implies two reasons why extramission may be appealing. Firstly, there is an ontological gap between crude material objects and the visual power which is, after all, a part of the sensory soul and thus subtler (albeit not as completely immaterial as intellect). The *species* of the material object must therefore be refined and rendered proportionate to the visual power in order to be able to act upon it. This demand is met precisely by extramission – the power is emitted from the eyes (in the form of a cone) and makes the *species* proportionate to itself. The *species* are "moderated" (*contemperantur*) and made suitable to enter the eye. If they were not moderated, sight would gradually be disintegrated by them (concl. 4, §36)[121].

Secondly, sometimes extramission of the "natural light" of the eyes can substitute for external light when it is lacking. As commonly accepted, vision requires ordinary light – the color of objects cannot multiply their *species* without being mingled with the light[122]. However, as some ancient anecdotes allege, some animals

120 Compare §32 with Peckham, *Perspectiva communis* I, 45 (48), p. 128 (quoted in the edition).

121 Borotín's source is Peckham, *Perspectiva communis* I, 46 (49), p. 128–130. Cf. also Rogerius Bacon, *Perspectiva* I. 7, 4, p. 104–106 and L. Lička, "The Visual Process: Immediate or Successive? Approaches to the Extramission Postulate in 13th-Century Theories of Vision", in E. Baltuta (ed.), *Medieval Perceptual Puzzles: Theories of Sense-Perception in the 13th and 14th Centuries*, Leiden, Brill, 2020, p. 89–94.

122 See, e.g., Peckham, *Perspectiva communis* I, 47 (50), p. 130.

can see in darkness. Borotín (again following Peckham) explains this precisely by advocating extramission: The visual powers of some animals are so strong that they can replace the outer light and give a "power to multiply" (*virtus multiplicativa*) even to color in darkness (§41)[123].

Borotín therefore combines both competing positions. The primary mechanism is intromission (the eyes receive *species* both of colors and light), but extramission is also involved in the process (the powers are emitted forth towards the objects in order to moderate and sometimes corroborate the *species*). All three movements (the multiplication of *species* of colors and light, and the emission of powers) constitute three visual cones, with the apex in the eye and the base on the visible object – all occupying the same place (§37). Whereas perspectivists postulated only two cones (of *species* and of emitted power), Borotín adopts three cones from Bartholomaeus Anglicus.

To sum up, Borotín presents a compromise position. On the one hand, his answer to the question given to him by Hus is negative. In his view, sensations do not occur through extramission of the sensory power but rather by receiving the *species* of the object. The primary mechanism behind vision is not extramission but intromission. On the other hand, although he denies a robust conception of extramission, Borotín still argues for involving extramission (of visual power) in the visual process as important for "refining" *species* coming from the outside to the eye. Is this an eclectic position, a superficial mixing of different sources without real understanding? It is worth noting that such a combination of intromission and extramission was quite common among medieval thinkers. Even Aristotle – although read as a strict intromissionist by thinkers like Albert the Great or Thomas Aquinas – was sometimes interpreted as conceding extramission[124]. Stressing the extramissionist hints in Aristotle was common in the thirteenth century, especially among Franciscan thinkers (e.g. Bartholomaeus Anglicus, Bacon and Peckham). Not surprisingly, these authors also want to integrate extramission into their general account of perception. Thus, the compromise view presented by Borotín is derived directly from Peckham, but one may also find it in Bartholomew or Bacon[125]. The popularity of this position is also manifested by the fact that later in the fourteenth century it was held by John Wyclif who proposes it at least in his *Trialogus*[126],

123 See also Peckham, *Perspectiva communis* I, 46 (49), p. 128–130.

124 Especially some parts of his *Meteorology* (where he uses the notion of the visual ray to account for some meteorological phenomena), *De animalibus* (see §38 of Borotín's question), or *De somno*, where he mentions a case of a menstruating woman whose gaze allegedly clouds a mirror (2, 459b24–460a23). The last passage (in Latin translation) is referred to in the excerpts from various texts on dreams written in Borotín's hand in his personal codex and interpreted as proposing extramission. See MS Prague, KMK, O 1, fol. 10r: "[…] facile hic videtur quod visus fiat extramittendo, ut per totum 3^{m} *Metheororum* videtur velle Aristoteles, ubi loquitur de refraccione visus."

125 Bartholomaeus Anglicus, *DPR* III. 17, p. 168, 169–170; Rogerius Bacon, *Perspectiva* I. 7, 2–4, p. 100–106.

126 As mentioned in section II above, the evangelic doctor also ascribes this position to Augustine and Robert Grosseteste (Iohannes Wyclif, *Trialogus* II. 7, p. 97); see also Phillips, "John Wyclif", p. 258.

which in turn inspired Hus in his preparation for discussion with Borotín. Thus, Borotín's conclusion was likely in consonance to what was regarded as the correct opinion among his peers during the quodlibetal session.

4. Conclusions

This paper aimed to investigate the dissemination of perspectivist texts and knowledge of the discipline among Prague University masters around 1400. Despite the lack of optical manuscripts extant in Prague today, it has been documented that *perspectiva* was taught at the Prague Faculty of Arts at least from the 1370s and – on the examples of Jenek of Prague and Conrad of Soltau – that it was also referred to in philosophical and theological lectures. The main source for such investigation, however, is the Prague quodlibets organized from the 1390s to the 1410s. There are 13 questions explicitly dealing with optical topics included in the extant handbooks by Prague masters that organized a *quodlibet*. Some attest a considerable knowledge of perspectivist texts (Simon of Tišnov), while some are derived from other, more philosophical sources (namely from Wyclif, in the case of John Hus).

The only extant *positio* is the question on the mechanism of vision by John of Borotín. As it is a juvenile work by a fresh master of arts, expectations should not be too high. Borotín borrows extensively from *De proprietatibus rerum* by Bartholomaeus Anglicus in the *notabilia* section (on sensory powers and organs), but his position is influenced rather by John Peckham's textbook *Perspectiva communis*. He uses Peckham's arguments against extramission, but in the end proposes a compromise intromissionist account with some extramissionist features in a manner similar to Peckham. Nevertheless, Borotín's question is rather a cognate of Aristotelian psychological works than a full-fledged perspectivist text (e.g. Borotín includes nothing at all from geometrical optics)[127].

127 I am indebted to Ota Pavlíček and Pavel Blažek for discussions on the subject of this paper, and their valuable comments on the edition. My thanks also go to David Juste for sharing his copy of Borotín's codex with me, to Matyáš Havrda for his help in identifying the citations from Galen, and to Alena Hadravová for her hints on the dissemination of *De proprietatibus rerum* in Bohemia.

Appendix I
Borotín's Notes in MS Prague, NK ČR, X H 18

The final redaction of Borotín's *quaestio* is preserved in MS Prague, NK ČR, X H 18 on fols 58r–61r among several different texts written in the same hand. All these texts constitute a part of the codex (55r–62v) which is – in terms of its handwriting – independent of adjacent parts. This part is also separated by blank folios (54 bis r – 54 ter v; 62 bis r – 62 bis v)[128]. As was argued above, this part of the codex may comprise folios Borotín himself used for recording notes, excerpts or preparing his own texts, and which were later bound together with other gatherings into one codex. A brief description of the contents of the passages written by what can be considered Borotín's hand follows:

55r–56v: **Notes on *quaestiones* on (human) intellect**
Inc.: *Sicud habet se sensus ad sensibilia, sic intellectus ad intelligibilia. Nota: duplex est passio* […]
Expl.: […] *ex 2° Metaphysice Buridani questione*.

This passage includes rather short *quaestiones* dealing with intellect. These notes or excerpts are of different lengths (some of them gather several arguments and notabilia, others a few sentences). The titles are: *Utrum intellectus sit virtus passiva vel activa*; *U. intellectus possibilis sit intelligibilis*; *U. intellectus sit separatus ab intelligibili*; *U. intellectus potest intelligere sine phantasmate*; *U. calidum consumat ipsum humidum radicale* (a mere title without text); *U. indivisibile est intelligibile*; *U. intellectus possibilis sit ens in pura potencia*; *U. intellectiva anima sit forma substancialis*.

The topics of all these questions belong to the tradition of commentaries on Aristotle's *De anima* III; the reference in the explicit indicates that they may be of a Buridanian origin. If written by Borotín himself, they may represent his *reportationes* of lectures on *De anima* or preparations for an exam.

The text seems to be written on a single independent bifolio.

57r–57v: **Shorter redaction of Borotín's *Utrum sensationes* […] – first part**
Inc.: *Utrum sensaciones fiunt per extramissionem virtutum ab organis sensitivis. Arguitur sic* […]
Expl.: […] *et ista instrumenta iam …* | in marg. inf.: *Qui ergo leditur in puppi amittit motum, qui in prora, sensum.*

128 The composition of this part of the codex is not entirely clear at first sight, as the binding is very tight and the quires are mostly irregular. However, an inspection *in situ* revealed that fols 55–56 seem to represent an independent bifolio attached to a *ternio* (fols 57–62). All these folios are yellowed and timeworn, which contrasts with the brighter bifolio (54 ter + 62 bis) into which both the bifolio and *ternio* seem to be inserted. Such a quiring scheme (1+[1+1]+[3+3]+1) accords with the textual content of the gathering: while the bifolio includes Borotín's notes on *De anima*, the *ternio* preserves two versions of his quodlibetal *positio*.

As argued above, this part presents a preliminary, shorter but highly glossed version of Borotín's *quaestio*. It continues on fols 62r–62v. Note that fols 57 and 62 constitute a bifolio.

58r–61r: **Longer redaction of Borotín's *Utrum sensationes*** […]
Inc.: *Utrum sensaciones* […].
Expl.: […] *questio, ut proponitur, est falsa.*
Edited below, see §§1–39.

61r–v: **Several notes connected to the main text of the *quaestio***
Inc.: *Virtus, ut dicit Philosophus* […]
Expl.: […] *qua sentiri debet sicuti est.*
Edited below, see §§40–43. Together with the preceding item, these texts are written on two bifolios (58–61).

62r–62v: **Shorter redaction of Borotín's *Utrum sensationes*** […] **– second part**
Inc.: | … *sunt sicud canalia que si obstruuntur per aliquam viscosum vel grossum humorem, cessat motus et sensus* […]
Expl.: *Item ergo stantibus concurentibus sensu, organo eius, virtute, obiecto et medio et intencione actuali sensus super sensibile, causatur sensacio.*

62v: **An excerpt on saliva from Bartholomaeus Anglicus**
Inc.: *Saliva in sapore est insipida* […]
Expl.: […] *secundum qualitatem saporis rei gustate immutatur; hoc Constantinus.*
This passage is not part of the preliminary version of the *quaestio*; however, Borotín included it in the final one. See §25 in the edition.

Appendix II
Critical Edition of John of Borotín's *Quaestio utrum sensationes fiunt per extramissiones virtutum ab organis sensitivis*

Ratio edendi

The question edited below is extant in a single manuscript (MS Prague, NK ČR, X H 18, fols 58r–61v). As argued above, the text preserved in the manuscript is written by the author himself in two versions. The aim of the present edition is more doctrinal than philological; thus, only the version the author considered final is edited here and the variants between both versions are not recorded. A full comparison of these two versions (merely indicated above) is beyond the scope of the present paper and may perhaps be the subject of future work on Borotín. Further, since the text is autograph, the additions, corrections and glosses, both marginal and interlinear (all of which are written in the same hand as the main text) are regarded as integral to the text itself and, consequently, are involved in the main edited text (the fact that they are later additions by the author is always indicated in the apparatus)[129].

I decided not to classicize the orthography, and the spelling of the manuscript is preserved even if it varies throughout the text (e.g. *olofactus* x *ollofactus*). The only exception is a systematic distinction between the vowel letter *u* and the consonant *v*. Admittedly, this strategy of adhering to the manuscript's orthography does not free the editor from having to make a choice from time to time, especially when a medieval scribe's abbreviation enables different spellings. In such cases, I resort to the reading which is, to my best knowledge, more common in late medieval Bohemian manuscripts[130].

Upper-case letters are used in the edition to mark the beginning of a sentence, proper names, generic names used in reference to an individual person (*Philosophus*, *Commentator*), or titles of texts. The titles are italicized. Abbreviations of the numerals are preserved (e.g. 3^{o}). Roman numerals are not substituted by Arabic numerals and vice versa. The text is divided into sentences according to its meaning, the interpunction follows the logical order of the text rather than the punctuation in the manuscript, which is only occasional and often insufficient. The division into paragraphs preserves the original division in the manuscript

129 I omit only the one-word glosses signaling the contents of the respective paragraph (e.g. the words *vitalis* and *animalis* on fol. 59r pointing to the parts of the text on the vital and animal power; see §16, and 17.)

130 A special case is the Latin word for "corollary" since medieval scribes used not only the correct variant *corollarium*, but also (and perhaps preferably) the incorrect variant *correlarium*. The present text includes seven instances of the abbreviation"cor^{m}", which may be expanded in both ways (see §30 [twice], 31, 35 [twice], 37, and 39). However, §37 includes the derived adverb *corollarie* abbreviated as"cor'e^{e}", which permits only the "incorrect" reading *correlarie*. Hence, I resort to the incorrect variant *correlarium* instead of the correct variant *corollarium*.

only partially: longer paragraphs are divided according to their sense. The paragraphs are numbered mainly to facilitate references. Quotation marks ("…") are used (i) to mark a piece of text that the author obviously intended as a quotation (usually, such a part of the text is preceded by an explicit reference to a particular author and/or his text); (ii) to indicate a tacit *verbatim* borrowing from another text by another author; and (iii) to mark an expression which is intended to refer to itself and not to its meaning (often preceded by *ly* in medieval Latin text). Square brackets ([…]) enclose words that I think should be deleted. Angle brackets (<…>) enclose words that I added, mainly headings and the numbers of the paragraphs. Editorial conjectures are indicated only in the apparatus by the abbreviation *coni.*

Conspectus auctoritatum

Albertus, *Mineralia* = Albertus Magnus, *Mineralia*. Opera omnia, vol. V, ed. A. Borgnet, Paris, Vivès, 1890, p. 1–116.

Aristoteles, *De anima* = Aristoteles Latinus, *De anima: Recensio Guillelmi de Morbeka*, ed. R.-A. Gauthier, in Thomas de Aquino, *Sentencia libri De anima*, Opera omnia, tom. XLV, 1, Roma, Commissio Leonina, 1984, p. 3–258 *passim*.

Aristoteles, *De sensu* = Aristoteles Latinus, *De sensu et sensato: Recensio Guillelmi de Morbeka*, ed. R.-A. Gauthier, in Thomas de Aquino, *Sentencia libri De sensu et sensato*, Opera omnia, tom. XLV. 2, Roma, Commissio Leonina, 1985, p. 3–96 *passim*.

Aristoteles, *Eth. Nic.* = Aristoteles Latinus, *Ethica Nicomachea: Recensio recognita*, in Aristoteles Latinus, *Ethica Nicomachea. Translatio Antiquissima libr. II–III sive ‚Ethica Vetus', Translationis Antiquioris quae supersunt sive'Ethica Nova', 'Hoferiana', 'Borghesiana', Translatio Roberti Grosseteste Lincolniensis sive 'Liber Ethicorum' (Recensio Pura et Recensio Recognita)*, 5 vols, ed. R.-A. Gauthier, Leiden, Brill, 1972–1974, vol. IV, p. 375–588.

Aristoteles, *Met.* = Aristoteles Latinus, *Metaphysica: Recensio et Translatio Guillelmi de Moerbeka*. 2 vols, ed. G. Vuillemin-Diem, Leiden / New York / Köln, Brill, 1995.

Aristoteles, *Topica* = Aristoteles, *Topica: Translatio Boethii*, in Aristoteles, *Topica. Translatio Boethii, fragmentum recensionis alterius et translatio anonyma*, ed. L. Minio-Paluello et al., Aristoteles Latinus V. 1–3, Bruxelles / Paris, Desclée de Brouwer, 1969, p. 5–179.

Auct. Arist. = Iohannes de Fonte, *Auctoritates Aristotelis, Senecae, Boethii, Platonis, Apulei Africani, Porphyrii et Gilberti Porretani*, ed. J. Hamesse, in J. Hamesse, *Les Auctoritates Aristotelis. Un florilège médiéval. Étude historique et édition critique*. Louvain / Paris, Publications universitaires / Béatrice-Nauwelaerts, 1974.

Averroes, *De anima* = Averroes, *Commentarium magnum in Aristotelis de anima libros*, ed. F. S. Crawford, Cambridge, Mass, The Mediaeval Academy of America, 1953.

Averroes, *De sensu* = Averroes, *De sensu et sensato*, in Averroes, *Compendia librorum Aristotelis qui Parva naturalia vocantur*, ed. H. A. Wolfson, D. Baneth, F. H. Fobes, Cambridge, Mass., The Mediaeval Academy of America, 1949, p. 3–44.

Barth. Angl., *DPR* I–IV = Bartholomaeus Anglicus, *De proprietatibus rerum*, vol. I: Prohemium, Libri I–IV, ed. B. Van den Abeele, H. Meyer, M. W. Twomey, B. Roling, R. J. Long, Turhnout, Brepols, 2007.

Barth. Angl., *DPR* = Bartholomaeus Anglicus, *De proprietatibus rerum*, Frankfurt, Wolfgang Richter, 1601.

Constantinus, *Pantegni* = Constantinus Africanus, *Pantegni*, in Ysaac, *Omnia opera*, 2 vols, Lyon, 1515, vol. II, fols 1ra–144ra.

Galenus, *De interioribus* = Galenus, *De interioribus*. In *Quarta impressio ornatissima continens omnes Galeni libros*, ed. Rusticus Placentinus, Pavia, De Burgofranco, 1515, vol. II, fols 24ra–47rb.

Hus, *Quodlibet* = Iohannes Hus, *Quodlibet*, ed. B. Ryba, Turnhout, Brepols, 2006.

Iohannes de Ganduno, *Qq. De sensu* = Iohannes de Ganduno, *Quaestiones super librum De sensu et sensato*, in Iohannes de Ganduno, *Quaestiones super Parvis Naturalibus*, ed. Albratius Apulus, Venice, Hieronymus Scotus, 1557, fols 1ra–22ra.

Iohannicius, *Isagoge* = Iohannicius, Isagoge ad Techne Galieni, ed. G. Maurach, in *Sudhoffs Archiv*, 62–2 (1978), p. 148–174.

Isaac, *Def.* = Isaac Israeli, "Liber de Definicionibus", ed. Joseph Thomas Muckle, in *Archives d'histoire doctrinale et littéraire du Moyen Âge*, 11 (1937–8), p. 299–340.

Peckham, *Persp. comm.* = John Peckham, *Perspectiva communis*, ed. D. C. Lindberg, in D. C. Lindberg, *John Pecham and the Science of Optics*, Madison / Milwaukee / London, University of Wisconsin Press, 1970.

Pseudo-Buridan, *Exp. De an.* = (Pseudo-)Iohannes Buridanus, *Expositio De anima*, in B. Patar, *Le Traité de l'âme de Jean Buridan [De prima lectura]*, Louvain-la-Neuve / Longueil (Québec), Editions de l'Institut supérieur de philosophie / Editions du Préambule, 1991, p. 5–163.

Tišnov, *Quodlibet* = Simon of Tišnov (Simon de Tissnow), *Quodlibet*, MS Prague, Knihova Národního muzea, V C 42.

Conspectus siglorum

H MS Prague, NK ČR, X H 18, fols 58r–61v
<…> *addenda censui*
[…] *secludenda censui*

Conspectus abbreviationum

a.c. = *ante correctionem* (scribal correction)
add. = *addidit*
cf. = *confer*
cod. = *codex manu scriptus*
coni. = *conieci* (editor's conjecture)
del. = *delevit*
in mg. dext. = *in margine dextro*
in mg. infer. = *in margine inferiori*
in mg. sin. = *in margine sinistro*
iter. = *iteravit*
lect. inc. = *lectio incerta*
subscr. = *subscriptum*
suprascr. = *suprascriptum*

<Iohannes de Borotin>
<Quaestio>
<Utrum sensaciones fiunt per extramissiones virtutum ab organis sensitivis>

| Utrum sensaciones fiunt per extramissiones virtutum ab organis sensitivis H58r

<1> Arguitur sic, nam impossibile est quod fiat visio nisi vis visiva sensibili, quod est visibile, assit presens; sed cum intus in oculo non fiat visio sed extra, oportet quod fiat per extramissionem ab oculo ad ipsum sensibile quod movit ipsam visivam potenciam ad egressum; igitur questio vera.

<2> In oppositum est Philosophus *De sensu et sensato* et Commentator et alii philosophi.

<3> <Problema:> Quare, ut ait Avicenna in suo libro *Mineralium*, loca circa centrum terre sunt magis auro, argento et aliis metallis consita et conferta?

<Notabilia>

<4> Pro decisione huius questionis primo neccesarium est terminos in titullo questionis repositos declarare.

<5> Noto ergo primo quod "sensacio", cum sit nomen verbale terminatum in "-cio", significat tria, ut vult Philosophus. Primo scilicet rei sensantis accionem, secundo sensate rei passionem, tercio rem sensatam. Et potest sic describi: Sensacio est sensibilis – per species senciendi sensui impressas sine materia – apprehensio. Vel sic: Sensacio est sensibilis per virtutem sensitivam apprehensio. Prima est per causam instrumentalem, secunda datur per causam efficientem.

<6> Noto 2° quod ad sensacionem requiritur primo sensus, secundo organum eius, tercio virtus sensitiva, que tria exprimantur in titullo questionis, cum dicitur "utrum sensaciones fiunt etc. Requiritur eciam obiectum, medium et actualis intencio anime; similiter sensibile que non exprimitur, sed innuitur in titulo questionis.

7/16 Arguitur sic … aliis metallis consita et conferta.] *Hus, Quodlibet, q. 56, p. 255.* | **12/13** *Aristoteles, De sensu 2–3, p. 16, 22 (437b10–438a5, 438a25–b2); cf. Averroes, De sensu, p. 25–36.* | **14/16** *Locum non inveni; cf. Albertus, Mineralia III. 1. 10, p. 72b.* | **20/22** *Cf. Auct. Arist. XXXVI. 84, p. 328:* "Ductio et commensuratio sunt aequivoca, ex quo habetur communiter quod omne nomen verbale in -tio est aequivocum, videlicet quod tria significat, scilicet agentis actionem, rei passae passionem et ipsam rem passam, sive actum intermedium."*; cf. Aristoteles, Topica VI. 2, p. 115 (139b21–22).*

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8 intus] *suprascr.*

<7> Sensus sic describitur: Sensus est virtus passiva rerum sensibilium per species senciendi sine materia receptiva. Sicut enim cera recipit formam sigilli sine materia, sic sensus speciem sensibilis sine materia, ut vult Philosophus 2° *De anima*. Species autem senciendi est similitudo materialis et propria rei, qua res materialiter cognosci habet sicuti est. Sunt autem sensus quidam interiores, quidam exteriores, sed dimissis interioribus, restringetur sermo pro exterioribus, de quibus magis videtur eodem questionis intencio.

<8> Sunt autem sensus exteriores quinque – sensus visus, auditus, ollofactus, gustus et tactus – quibus fit sensacio, quarum eciam sunt organa quinque distincta secundum quinque corpora sensibilia principalissima mundi corporei. Primum est organum visus quod est quodammodo nature etheree ex eo quod est diafanum et lumen est sibi connatum, ut dicit auctor *Perspective communis* 46ª proposicione primi: "Lumen oculi naturale radiositati sua conferre visui". Sed quia organum visus faciliter recipit species et conservat, dicitur aquee nature.

<9> Organum ollofactus est ignee, cum sit calidius et siccius. Auditus aeree: nam organum auditus mediante aere quodam in tortuositate auris complantato recipit species sui sensibilis et conservat. Organum gustus aquee, tactus autem terree. Omnis enim res corporea substancialis est nature alicuius illorum corporum. Similiter et organum. Dico igitur quod quilibet sensus habet suum organum, in quo suum exercet officium.

<10> Organum visus est humor glacialis vel cristalinus, | ut dicit 36ª *Communis perspective*: "Visum vigere in glaciali humore". Et similiter Constantinus in *Pantegni*, quod experimento cognoscitur, nam si alicui humori vel tunice lesio accidit, per medicinam curacionem recipit; corrupto vero glaciali visus irrevocabiliter corrumpetur. H58v

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32/35 *Aristoteles, De anima II. 24, p. 168 (424a17–24); cf. Auct. Arist. VI. 103, p. 182:* "Omnis sensus est susceptivus omnium specierum sensibilium sine materia, sicut cera suscipit figuram sigilli auri sine auro." | **45/46** *Peckham, Persp. comm. I. 46 (49), p. 128–130.* | **46/47** *Cf. Aristoteles, De sensu 3, p. 22 (438a12–16); cf. etiam Auct. Arist. VII. 9, p. 196 (Thomas de Aquino):* "Visus attribuitur aquae, quia aqua, ratione quae est perspicua, est potens recipere species coloris." | **54/55** *Peckham, Persp. comm. I. 36 (39), p. 120.* | **55/56** *Cf. Constantinus, Pantegni (Theorica) III. 14, fol. 11rb:* "Est autem solum instrumentum visus: scilicet humor non ex toto rotundus quia in superficie aliquantulum est planus atque clarus sicut crystallus. Hic humor grece vocatur crystalloidos […]"; *cf. Barth. Angl., DPR V. 5, fol. 128:* "[…] unum solum est visus instrumentum, scilicet humor crystallinus […] Est igitur crystallinus humor, secundum Constantinum, albus, lucidus, clarus […]." | **56/58** experimento cognoscitur … irrevocabiliter corrumpetur] *Cf. Peckham, Persp. comm. I. 36 (39), p. 120:* "[Propositio] 36 […] Visum vigere in glaciali humore. Hoc experimento docetur, quoniam si alii cuicunque

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32 Sensus est virtus] Sensus est sigilaccio apprehensionis forme sensate in senciente. *add. in mg. dext.; cf. Isaac, Def., p. 324:* "[…] sensus est sigillacio impressionis sensati in senciente […]." | **35** senciendi] sensiendi *a.c.* | **45** 46ª] lxvª *a.c.* | proposicione] communis perspective primi *add. sed del.* | **51** res] est nature illorum corporum *add. sed del.*

<11> Oculus enim in sui composicione habet tres humores, VII tunicas et tres orbes. Tres sunt tunice interiores et 4 exteriores. Et semper due tunice (una interior cum una exteriori) claudiunt unum humorem et perficiunt orbem, in quorum medio est – tanquam centro oculi – crystalinus vel glacialis, quod idem est, tunica rethina et tela aranee conclusus, in quo est spiritus visibilis. Que tunica si rumpitur, ita quod humor ille crystalinus effluit, visus corrumpitur, unde dicit Galienus I° *De interioribus*, quando quidam puer prefixit sibi humorem albugineum ita quod aliquot gutte eius eximit et tamen virtus visiva non fuit lesa, differens tamen est humor ille. De composicione oculi plene vide post questionem.

<12> Organum auditus est quedam miringa in ossibus petrosis aurium fixa, in qua aer est complantatus. Organum olofactus sunt due caruncule prope cerebrum in nauribus situate ad modum mamillarum dependentes in complexione calida et sicca, ut per recepcionem sui sensibilis contemperent cerebrum in qualitatibus suis. Organum gustus est quidam nervus a cerebro ad lingue medium ductus ad extremitates linguе ramificatus. Organum tactus est quidam nervus per totum corpus ramificatus et expansus sicud rethe. Et omnes isti nervi habent ortum de ventriculi cerebri a prora, i.e. anteriori parte cerebri. Dicti quidem sunt nervi sensitivi, nam per eos virtus animalis sensitiva, que est causa efficiens sensacionis, dirigitur a cerebro ad organa sensitiva ad sensacionem faciendum.

<13> Propter quod contingit – ut videtur ad experienciam que est rerum magistra – quod si aliquis offenditur in prora, amittit sensum. Si quidem transitus virtutum animalium impeditur aliquando ad organa sensitiva, ut quia nervi sunt per grossum humorem et viscosum [sunt]

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tunice vel humori lesio accidat, salva glaciali, per medicinam recipit curationem et sanatur, ac restituitur visus. Ipsa vero corrupta, corrumpitur visus irrecuperabiliter." | **59/60** *Cf. Barth. Angl., DPR V. 5, fol. 128:* "Sunt autem oculi decem causae ipsius substantiam componentes, scilicet septem tunicae et tres humores."; *Constantinus, Pantegni (Theorica) III. 14, fol. 11r:* "Sunt autem uniuscuiusque efficientes cause decem: tres scilicet humores et septem tunice." *Cf. etiam Tišnov, Quodlibet, q. 46, fol. 131v, 132v.* | **65/68** *Cf. Galenus, De interioribus I. 2, fol. 25rb (locus incertus).* | **68** *Cf. §41 (?).* | **70/72** Organum olofactus … mamillarum dependentes] *Cf. Barth. Angl., DPR III. 19, p. 174:* "Necessarium autem est organum expediens, scilicet narium perfecta dispositio, in quibus sunt caruncule ad modum mamillarum dependentes, que sunt propria organa odoratus, et recipient spiritum animalem per quosdam nervos a cerebro descendentes." | **73/75** Organum gustus … ramificatus] *Cf. Barth. Angl., DPR III. 20, p. 176–177:* "Fit autem gustus hoc modo: duo nervi in medio lingue infiguntur, qui postmodum in multos ramos in extremitatibus lateralibus lingue disperguntur, et per eos spiritus animalis ad linguam defertur." | **77** a prora … cerebri] *Cf. Barth. Angl., DPR V. 3, fol. 124:* "Cognominatur autem pars anterior [cerebri] prora, posterior pars puppis vocitatur." | **78/80** *Cf. §14.*

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67 differens] *lect. inc.* | **69** est] *suprascr.* | **74** a cerebro] ac *a.c.* | **83/84** ad organa sensitiva] *add. in mg. sin.*

obstructi vel alia de causa quacunque, cessat sensus in organo. Eciam videmus, quando quidam clausos habentes oculos, bene quidem dispositos, nihil tamen vident, quia virtus visiva in humore glaciali non comparet. Similiter quidam habent organum olofactus, scilicet illas carunculas bene dispositas, non odorantur tamen, hoc contingit vel a natura vel ab eventu vel ex mala complexione cerebri, aut mala disposicione vasorum ad organum olofactus directorum etc.

<14> Dixi 3° quod ad sensacionem requiritur virtus que est causa efficiens sensacionis, ut dicit Constantinus in *Pantegni*. Unde ly "virtus" apud philosophos multipliciter accipitur; in presenti tamen materia summitur virtus pro quadam potencia anime per quam ipsa suas operaciones exercet in corpore et describendum sic: "Virtus est potencia anime ei essencialiter attributa ad suas peragendas in corpore acciones, nam mediante hac virtute anima corpus vivificat, cor et arterias constringit continue et dilatat, sensum et motum voluntarium omni animato corpori administrat, ut dicit idem Constantinus libro 13 in *Pantegni*."

<15> Hoc autem virtus est triplex, scilicet naturalis, vitalis et animalis. Virtus naturalis habet ortum ab epate cui, ut | dicit Galienus I° *De interioribus*, capitulo 8^vo^, ista virtus communicatur; cuius multe sunt species – scilicet generativa, nutritiva, augmentativa, attractiva, retentiva, digestiva, expulsiva etc. – de quibus tractant medici. Et accio huius virtutis communis <est> in animalibus et plantis, ut dicit idem Constantinus. Et hec virtus dependet ab anima vel potencia vegetativa, huius vasa sive canalia sunt vene ab epate generate, per qua vasa mediante spiritu naturali tanquam suo vehiculo deportatur ad nutriendum totum corpus. H59r

<16> Alia dicitur virtus vitalis, eo quod anima per eam vitam toti ministrat corpori, cuius proprium domiccilium est cor, vasa vero eius sunt arterie a corde genite. Huius virtutis operacioni cooperatur virtus voluntarie motiva qua cor et arterie dilatantur et constringuntur. Et dicitur hec

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92/93 *Potius Bartholomaeus Anglicus; cf.* Barth. Angl., *DPR III. 17, p. 167; 18, p. 172; 19, p. 174; 20, p. 176; 21, p. 178.* | **96/100** Virtus est potencia … in *Pantegni*] Barth. Angl., *DPR III. 14, p. 162; cf.* Constantinus, *Pantegni (Theorica) IV. 1, fol. 14vb:* "[…] necesse est nature atque anime quandam virtutem inexistentem qua operationem suam valeat complere. […] Virtus vero anime solum vivificat, i.e. cor et arterias constringit et dilatat, memoriam dans et intellectum sensum quocunque et voluntarium motum." | **102/103** *Locus incertus; cf. e. g.* Iohannicius, *Isagoge, §17, p. 155:* "Spiritus igitur tres sunt: primus, naturalis, sumit principium ab epate […]"; Constantinus, *Pantegni (Theorica) IV. 19, fol. 17va:* "Naturalis spiritus in epate nascitur […]." | **105/106** accio huius … Constantinus] *Recte* Barth. Angl., *DPR III. 14, p. 162:* "Actio igitur virtutis naturalis in animalibus et in plantis communis est, que generat, nutrit et augmentat, ut idem dicit Constantinus."

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85 de] *suprascr.* | **89** odorantur] *coni.* odorant *cod.* | **102** cui, ut] *iter.* | **107** vel potencia] *add. in mg. dext.* | vasa] sunt *add. sed del.* | **112** operacioni] *coni.* operacione *cod., cf.* Barth. Angl., *DPR III. 15, p. 164*.

dilatacio motus a cordis medio in omnes extremitates, sicud e contrario constriccio dicitur motus ab extremitatibus ad cor, ut potest videri in fabrorum follibus. Huius subiectum sive vehiculum est spiritus vitalis per totum corpus diffusus.

<17> Tertia virtus est animalis, que sedem habet in subtilissimis cerebri ventriculis; et hec est triplex: Quedam dicitur ordinativa que per se solum explet cerebrum: nam in prima parte sive in anteriori celula ordinat fantasiam sive ymaginacionem; in media ordinat estimativam et racionem; in posteriori perficit memoriam et memorativam accionem. Nam virtus ymaginativa illud quod format et ymaginatur, transmittit ad iudicium racionis, racio vero, quod ab ymaginativa recipit et quasi iudex iudicat et diffinit, ad memoriam transmittit, memoria vero ea recipiens conservat.

<18> Secunda virtus animalis dicitur motiva, cuius vasa sive canalia sunt nervi motivi, a posteriori parte cerebri orti, transeuntes per nucham, i.e. medullam spinalem spondilium dorsi, ramificati ulterius per totum corpus; cuius vehiculum est spiritus animalis qui decurrens per hos nervos movet omnia membra – primo enim movet nervos, musculos et lacertos qui moti movent alia membra in omnem partem voluntarie motu. Unde si aliquis vulneratur ad puppim vel si offenditur ad aliquam spinam dorsi, ut aliquando illi nervi vel ex cicatrice aut aliquo humore viscoso fiant obstructi, cessabit motus in talibus membris, ut declarat

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110/116 Alia dicitur … fabrorum follibus] *Cf.* Barth. Angl., *DPR III. 15, p. 163–164:* "[…] virtus vitalis, que vivificat, cuius fundamentum sive proprium domicilium est cor, a quo procedit vita ad omnia membra vivificanda. Istius virtutis operationi cooperatur vis voluntarie motiva, qua cor et arterie dilatantur et constringuntur. Et dicitur hic dilatatio motus a cordis medio in omnes extremitates; sicut econtrario constrictio dicitur motus ab extremitatibus ad ipsum medium, sicut est in fabrorum follibus videre." | **118/125** Tertia virtus … recipiens conservat] *Cf.* Barth. Angl., *DPR III. 16, p. 166:* "Virtus animalis sedem et locum habet in superiori parte hominis, scilicet in cerebro, et hec est triplex, scilicet ordinativa, sensitiva et motiva. Ordinativa per se solum explet cerebrum. Nam in prima parte sive in anteriori cellula ordinat phantasiam sive imaginationem. In media cellula ordinat estimativam et rationem. Et iterum in posteriori cellula perficit memoriam et memorativam actionem. Nam virtus imaginativa illud quod format et imaginatur transmittit ad iudicium rationis. Ratio vero quod ab imaginativa recipit et quasi iudex iudicat et definit ad memoriam transmittit. Memoria ea que fuerunt in intellectu posita recipit et, donec illa ad actum reducat, conservat firmiter et custodit." | **126/132** Secunda virtus … voluntarie motu.] *Cf.* Barth. Angl., *DPR III. 12, p. 158:* "Virtus autem animalis motiva, que principaliter sedem habet in ventriculis cerebri, a quo oriuntur omnes nervi mediante nucha, id est medulla spinali, que est in spondilibus dorsi, movet omnia membra. Primo enim movet nervos, musculos et lacertos, qui moti movent et alia membra motu voluntario in omnem partem."

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118 habet] *suprascr.* | **120** solum] solet *a.c.* | **122** memoriam] *coni.* meditativam *cod., cf.* Barth. Angl., *DPR III. 16, p. 166.* | **128/129** per totum corpus] in quibus per spiritum animalem motum *add. sed del.*

Galienus I° *De interioribus* quod quidam homo ex vulnere facto in uno spondili et cicatrice demum indurata, amiserat motum in tribus digitis manus sensu permanente, unde cum quidam medicus per multos dies sibi emplastrum super hos tres digitos posuisset, nihil sensit. Post Galienus, considerans ora nervorum motivorum, qui dirigebantur ad illos tres digitos, fuisse obstructa per cicatricem in uno spondili dorsi factam, deposito emplastro de digitis, imponit super unum spondile et curant eum. Ex quo patet quod aliquando nervi sensitivi tantum obstruuntur et tunc cessat tantum sensus in illo membro, aliquando tantum motivi et cessat tantum motus, aliquando utrique et cessat uterque, ut ostendit ibi Galienus.

<19> 3ª virtus animalis dicitur virtus sensitiva, cuius officium est ut toti corpori prebeat sensum. Sensitiva virtus est potencia qua anima de coloribus, saporibus et aliis sensuum obiectis iudicat et discernit, cuius vasa sive canalia sunt nervi sensitivi a prora, ut dictum est, orti, per quos virtus animalis sensitiva ad quinque organa sensuum a cerebro deportatur ad sensacionem peragendam. Et ista virtus sensitiva dependet ab anima sensitiva que est "quedam spiritualis substancia vegetativa nobilior et dignior, racionali vero longe ignobilior et indignior, nam eius esse et operacio dependet a materia sive subiecto cuius est perfectiva, unde pereunte corpore periit ipsius essencia et operacio nec permanet a corpore separata," dicit Constantinus.

<20> | Sic igitur anima mediantibus hiis virtutibus suas in corpore H59v exercet acciones; non tamen per dimensionem aut loci spacium extenditur, sed eius virtute corpus undique regitur et movetur. Cuius exemplum ponit Calcidius in commento *Super Thimeum* de aranea que in medio tele sue residens sentit qualemcunque motum sive exterius sive interius factum: sic anima in centro cordis residens sine sui distensione totum corpus vivificat et omnium membrorum sensum et motum dirigit et gubernat mediantibus istis tribus virtutibus, scilicet naturali, vitali et animali.

134/142 *Cf.* Galenus, *De interioribus I. 6, fol. 27rb.* | **149** *Cf. §12.* | **152/156** quedam spiritualis … corpore separata] *Recte* Barth. Angl., *DPR III. 12, p. 159.* | **158/164** non tamen per dimensionem … dirigit et gubernat] *Cf.* Barth. Angl., *DPR III. 3, p. 151:* "[…] anima in corpore regendo non per dimensionem et loci spatium in corpore extenditur, sed eius virtute corpus undique regitur et movetur. Sicut ponit Calcidius exemplum in Commento super Timeum de aranea que in medio sue tele residens sentit qualemcumque motum interius sive exterius factum, sic et anima in centro cordis residens sine sui distensione totum corpus vivificat et omnium membrorum motus dirigit et gubernat."

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139 ora nervorum motivorum] nervos *a.c.* | **147/148** sensitiva virtus … discernit] *add. in mg. dext. et infer., cf.* Barth. Angl., *DPR III. 11, p. 158.* | **157** hiis] *lect. inc.* | **162** cordis] *coni.* corporis *cod.; cf.* Barth. Angl., *DPR III. 3, p. 151.*

<21> Et sicut tres sunt virtutes, sic tres sunt spiritus, scilicet naturalis, vitalis et animalis, qui sunt quasi vehicula illarum trium virtutum deferentes eas per totum corpus. Spiritus autem est "quedam substancia subtilis aerea, virtutes corporis excitans ad suas peragendas acciones", cuius "beneficio et motu continuo tam sensus quam virtutes in animalibus moderantur, ut suas peragant acciones." Qui sic generatur: "Dum per calorem fortem agentem in sanguinem in epate fit ebulicio, quidam fumus resolvitur qui ex venis epatis subtiliatur et depuratur in quandam spiritualem et subtilem substanciam sive aeream naturam commutatur etc." Quere post presentem de generacione huius spiritus. Videlicet accipit autem sibi diversa nomina, cum sit unus et idem spiritus corporeus, subtilis tamen et aereus propter diversa officia que in diversis peragit membris. Spiritus igitur isti animales deportant virtutem animalem sensitivam a cerebro ad organa sensuum quinque ad sensacionem faciendam que veniens ad organum dirigitur et depuratur in suo organo secundum exigendam qualitatem et naturam organi. Et isti in aliquibus sunt multi, in aliquibus pauci, in aliquibus nulli, sicud dictum est ante. Et sic queritur, utrum per extramissionem talium virtutum, scilicet sensitivarum, fiat sensacio.

<22> Dixi quarto quod ad sensacionem eciam requiritur obiectum et medium. Quilibet enim sensus habet suum obiectum adequatum et proprium, similiter et medium, que obiecta multiplicant suas species per medium intencionaliter vel spiritualiter in organum sensus et sic faciunt sensacionem.

<23> Obiectum visus est lux vel color. Lux per se primo, color per se secundo. Unde dicit Commentator: Color est visibilis sicud homo risibilis. Vel, uno nomine, "visibile" est obiectum visus. Medium eius est aer et aqua inquantum diafana, nam medium et organum dicuntur esse eiusdem nature, unde dicit Aristoteles: Aer secundum quod aer non recipit species, nec aqua secundum quod aqua, sed secundum quod diafana.

168/169 *Barth. Angl., DPR III. 22, p. 181.* | **170/171** *Barth. Angl., DPR III. 22, p. 180–181.* | **171/175** *Cf. Barth. Angl., DPR III. 22, p. 181.* | **175** *Cf. Barth. Angl., DPR III. 22, p. 181–182.* | **175/178** Accipit autem … peragit membris.] *Cf. Barth. Angl., DPR III. 22, p. 182:* "Unus igitur et idem spiritus corporeus, subtilis tamen et aereus propter diversa officia, in diversis membris diversis nominibus est vocatus." | **182** *Cf. §13.* | **190/191** *Cf. Averroes, De anima II. 67, p. 233:* "Aristoteles enim posuit principium quod color est visibilis per se, et quod simile est dicere colorem visibilem et hominem risibilem, scilicet de genere propositionis essentialis in qua subiectum est causa predicate non predicatum causa subiecti ut cum dicitur: homo est rationalis." | **193/194** aer secundum quod … secundum quod diafana] *Potius Averroes, De anima II. 97, p. 276–277:* "Et quod dixit de visione, quod natura media que servit visui non est aer secundum quod est aer, aut aqua secundum quod est aqua, sed natura communis, ita est intelligendum hic in natura que est media, scilicet quia est natura communis aque et aeris […]."

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175 Videlicet] *lect. inc.* | **178** virtutem animalem] virtutes animales *a.c.* | **178/179** sensitivam] *suprascr.* | **179** sensacionem] sa *seu* fa *a.c.* | **187** spiritualiter] usque ad ipsum sen<sum> *add. sed del.*

<24> Obiectum auditus est sonus, medium est aer vel aqua inquantum sunt canalia.

<25> Obiectum gustus est sapor vel gustabile quod consistit in humido, ut Philosophus 2° *De anima*. Medium gustus est caro spongiosa lingue, vel et melius, ut dicunt physici, saliva est medium gustandi. Nichil enim sensu gustus percipitur nisi cuius sapor mediante saliva gustus organo presentatur. Unde ipsa secundum qualitatem saporis rei gustate immutatur. Et propter hoc saliva in sapore est insipida, quia potencialiter est omnium saporum in se receptiva. Si enim esset alicuius saporis determinati, non esset alterius susceptiva, ut dicit Constantinus. Eciam dicit Philosophus: Impossibile est aliquid movere gustum nisi sit actu humidum.

<26> | Obiectum tactus potest dici composicio primarum qualitatum et quedam consequencia ad illas, ut asperum, lene, durum, molle, etc. Vel, uno nomine, obiectum eius est "tangibile", sive sit calidum, frigidum, humidum, vel siccum. Unde si tangibile est calidum et humidum, tunc organum tactus non debet esse actualiter calidum et humidum, sed in potencia, ut possit recipere qualitates ipsius tangibilis, quia recipiens debet esse denudatum a natura recepti. Item non debet esse equaliter calidum cum tangibili, quia ut sic, non faceret sensacionem, nam a proporcione equalitatis non fit motus, nec debet esse calidius, quia a proporcione minoris inequalitatis non fit motus. H60r

<27> Medium tactus "est caro, in qua nervi involuti sunt et infixi, per quos virtus tangibilis operatur, nam ipsis mediantibus species rei tangibilis anime iudicio deportatur", ut dicit idem Constantinus. Unde in tactu "necessarium est, ut res tangenda organo tactus appropinquet; ex cuius appropinquacione spiritus animalis in nervis existens et in carne immutetur et immutatus proprietatem rei tacte representet", ut dicit Constantinus. In istis enim duobus sensibus – gustus et tactus – medium

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200/204 Nichil enim … alterius susceptiva] *Cf.* Barth. Angl., *DPR V. 22, fol. 156:* "Est autem saliva naturaliter humida […] in sapore insipida, quia potentialiter est omnium saporum in se receptiva. Si enim esset alicuius saporis determinati, non esset alterius susceptiva. Est enim secundum eundem Constantinum saliva inter gustum et eius obiectum media, nihil enim sensu gustus percipitur, nisi cuius sapor mediante saliva gustus organo praesentatur. Unde etiam ipsa secundum qualitatem saporis rei gustatae immutatur." | **205/206** *Cf.* Aristoteles, *De anima, II. 21, p. 154 (422a34–b10).* | **207/209** Obiectum tactus … molle, etc.] *Cf.* Barth. Angl., *DPR III. 21, p. 178:* "Obiectum itaque sive sensatum tactus dici potest composition primarum qualitatum et quedam consequentia ad illas, ut asperum, lene, durum, molle." | **212/213** recipiens … recepti] Averroes, *De anima III. 4, p. 385 (= Auct. Arist. VI, 122, p. 184); cf.* Averroes, *De anima II. 118, p. 314.* | **217/219** *Recte* Barth. Angl., *DPR III. 21, p. 178.* | **220/223** *Recte* Barth. Angl., *DPR III. 21, p. 178.*

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198 De anima] Impossibile est aliquid movere gustum nisi sit actu humidum *add. sed del. et iteravit infra post* Eciam dicit Philosophus […]. | **204** ut dicit Constantinus] *add. in mg. sin.*

est organo coniunctum; in aliis vero tribus est extraneum, in quibus sensibile primo movet medium, medium vero motum movet organum; sed sensibilia gustus et tactus movent simul medium et organum, ut fiat sensacio.

<28> Istis ergo concurrentibus – sensu, organo eius, virtute, obiecto, medio et intencione anime – causatur sensacio.

<Conclusio prima>

<29> Conclusio 1ª: Omnis sensacio fit in organo sensitivo.

Ista conclusio est de mente Philosophi *De sensu et sensato*, ubi loquens de visione dicit sic: "Non enim in ultimo oculi anime sensitivum est, sed manifestum quoniam interius." Si igitur sensacio que est visio, non est in ultimo oculi, a fortiori non est extra oculum. Et si hoc verum est de visione, per locum a fortiori verum etiam de qualibet alia sensacione. Et probatur racione sic: Omnis sensacio fit per virtutem animatam sensitivam, omnis autem virtus animata sensitiva est in organo sensitivo, ut dixit notabile secundum, igitur conclusio "omnis sensacio est intus animata sensitiva" vera. Consequencia est bona, quia ex opposito consequentis omnis; sed prima pars antecedentis patet per Constantinum in *Pantegni* qui dicit quod virtus animata sensitiva est causa efficiens sensacionis, et similiter per experienciam, ut dictum est, nam absente virtute sensitiva non est possibile fieri sensacionem.

<Corollarium>

<30> Correlarium: Sensibile per se secundum esse reale non facit sensacionem.

Patet, quia sensibile per se quod debet sentiri illo sensu, ut dixit notabile ultimum, non est in organo sensitivo. Igitur correlarium verum.

<Conclusio secunda>

<31> Conclusio 2ª: Omne sensibile aptum natum est multiplicare suas species intencionaliter in medio.

Probatur: Omne sensibile aptum natum est se representare sensui, ut a sensu cognoscatur ex quid nominis, quod est "sensibile" quod aptum

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223/227 *Cf.* Aristoteles, *De anima II. 23, p. 163 (423b12–17);* pseudo-Buridan, *Exp. De an. II. 4, 6, p. 107.* | **232/234** *Cf.* Aristoteles, *De sensu 4, p. 27 (438b8–10):* "Non enim in ultimo oculi anima aut anime sensitiuum est, set manifestum quoniam interius."*; cf. etiam Auct. Arist. VII. 10, p. 196:* "Visiva virtus non est in extremitate oculi sita, sed infra oculum circa cerebrum." | **239** *Cf. § 12, 14.* | **242/243** *Cf.* §14.

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231 Conclusio 1ª] *in mg. dext.* | **239/240** omnis … sensitiva] *suprascr.* | **242** efficiens] *add. in mg. dext.* | **246** Correlarium] *in mg. dext.* | secundum esse reale] *suprascr.* | **248/249** quod debet … notabile ultimum] *subscr.* | **249** in organo sensitivo] hic nota *add. in mg. dext., cf. fol. 61v (§43)* | **251** Conclusio 2ª] *in mg. dext.*

natum est sentiri; "sentiri" vero est a sensu cognosci. Vel igitur talis representacio erit per se, vel per aliud a se. | Non per se eo quod ipsum per H60v
se non ingreditur organum sensus, ut dixit correlarium precedens; eciam quia sensibile positum supra sensum non facit sensacionem; eciam quia sic oporteret nos omnia sensibilia applicare sensui in sensacione, quod est inconveniens.

<32> Oportet igitur quod fiat per aliud a sensibili: vel ergo talis representacio fiet per extramissionem virtutum talium ab organis sensitivis ad ipsum sensibile, vel per species sensibiles multiplicatas ad organum sensus. Non primum, quia sic fieret sensacio extra organum et non in organo, quod est contra conclusionem primam. Item eciam quia vel tales virtutes extramisse ab organo ad sensibile renuntiantur ad organum sensus, vel non. Si non, nihil representabit sensui, eo quod anima cum eis non egreditur a corpore, et per consequens per eas non erit sensacio. Si vero renuntiantur tanquam nuncii, sequitur vel videtur quod sunt animati et racionales eo quod voluntarie exeunt et renuntiantur, quod est inconveniens. Relinquitur igitur quod talis representacio fiat per species a sensibili per medium multiplicatas, quod est propositum.

<33> Potest eciam illa conclusio sic probari: Omne sensibile aptum natum est offerre suam similitudinem materialem et propriam intencionaliter in medio; igitur conclusio vera. Tenet consequencia, quia species rei non est aliud nisi similitudo materialis rei; et antecedens pro prima parte patet ex quid nominis "sensibile".

<Conclusio tertia>

<34> Conclusio 3ª: Species sensibiles multiplicate per medium impresseque sensui causant sensacionem.

Probatur: Tales species notificant sensui sensibile, igitur causant sensacionem. Tenet consequencia ex descripcione sensacionis; nam sensacio est sensibilis per species sensui impressas apprehensio et per consequens

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257 *Cf. §30.* | **258** sensibile … sensacionem] *Cf. Auct. Arist. VI. 73, p. 180:* "Sensibile positum extra sensum non facit sensationem." | **264/265** *Cf. §29.* | **265/271** vel tales virtutes … est inconvenies] *Cf.* Peckham, *Persp. comm. I. 45 (48), p. 128:* "Radios quoscunque ab oculo micantes et orientes super visibile ad visionem impossibile est sufficere. Quod si ponantur radii ab oculo exire super rem visibilem quasi contingendam, aut redeunt ad oculum aut non. Si non redeunt visio per eos non fit, cum anima a corpore non exeat. Si redeunt, qualiter? Numquid animati sunt? Numquid omnia visibilia specula sunt radios reflectendo? Amplius si redeunt cum forma rei visibilis ad oculum frustra exeunt, quoniam lux ipsa vel forma visibilis virtute lucis in totum medium se diffundit. Ergo non est necesse ut radiis quasi nuntiis requiratur. Amplius quomodo aliqua virtus oculi usque ad sidera protendetur etiam si corpus totum in spiritus resolveretur?" | **282** *Cf. §5.*

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265 eciam] *suprascr.* | **274** materialem et propriam] *add. in mg. sin.* | **275** igitur] iq *a.c.* | **279** Conclusio 3ª] *in mg. sin.*

notificacio. Antecedens probatur, quia tales species deportant sensui similitudinem materialem et propriam sensibilis; igitur conclusio vera.

<Corollarium>

<35> Correlarium: Sensacio fit intus aliquid suscipiendo.

Probatur, quia fit per species susceptas in sensu, igitur correlarium verum. Item potest sic probari aliter: Omnis virtus, cuius operacio est immanens et que est quandoque in potencia et quandoque in actu, non fit in actu nisi aliquid intus suscipiendo; sed operacio sensus est immanens et eciam aliquando est in actu, aliquando vero in potencia; igitur etc. Consequencia tenet in DARII. Antecedens probatur, nam si sensus sentiret extramittendo et non intus suscipiendo, operacio eius non esset immanens et semper esset in actu et nunquam in potencia, quia semper extramitteret. Minor probatur, nam operacio sensus est sentire, sentire autem est immanens, ut patet 9° *Methaphysice*; eciam sensus quandoque est in potencia, quandoque in actu, ex 2° *De anima*; igitur etc.

<Conclusio quarta>

<36> | Conclusio 4ª: Quamvis sensacio fit per species sensibiles sensui impressas, nichilominus tamen virtutes egresse a sensu iuvant ad sensacionem. H61r

Probatur, quia alterant species sensibiles et faciunt eas proporcionatas virtuti sensitive, igitur etc. Assumptum patet de visione, in qua radii ab oculo piramidaliter emissi alterant species visibiles et faciunt eas proporcionatas virtuti visive, nam ex luce solari diffunduntur species visibilium, sed ex lumine oculi naturali oculo contemperantur; aliter enim non contemperate corrumperent visum, ut habetur 46 *Perspective*.

289/291 Omnis virtus … suscipiendo] *Cf.* Iohannes de Ganduno, *Qq. De sensu, q. 13, fol. 7va:* "Omnis virtus, quae quandoque est in actu, quandoque in potentia, et sua actio est immanens: oportet quod aliquid recipiat si suam operationem debet exercere. Si enim nihil recipiatur, tunc qua ratione non egit prius, nunc etiam non aget. Visus autem est huiusmodi, ergo etc." | **296/297** *Cf. Aristoteles, Met. IX. 8, pp 189–191 (1050a–b).* | **297/298** *Cf.* Aristoteles, *De anima II. 10, p. 107 (417a9–14); cf. etiam* pseudo-Buridan, *Exp. De an. II, 3. 1, p. 73:* "[…] aliquis dicitur quandoque sentire in actu, sicut quando actu operatur secundum sensum, et est in actu secundo, sicut quando actu audit; quandoque vero dicitur sentire in potentia, sicut quando dormit." | **304/308** *Cf.* Peckham, *Persp. comm. I. 46 (49), p. 128–130:* "Lumen oculi naturale radiositate sua visui conferre. Oculus enim, ut dicit Aristoteles, non solum patitur, sed agit quemadmodum splendida. Lumen igitur naturale necessarium est oculo ad alterandum species visibiles et efficiendum proportionatas virtuti visive, quoniam ex luce solari diffunduntur sed ex lumine oculi connaturali oculo contemperantur. […] Sic ergo patet quoniam aliquo modo fit emissio radiorum, sed non modo Platonico, ut radii ab oculo emissi quasi in forma visibili immergantur et intincti revertantur oculo nuntiantes."

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287 Correlarium] *in mg. sin.* | **289** Omnis] *coni.* | **300** Conclusio 4ª] *in mg. dext.* | **305** piramidaliter] *add. in mg. dext.*

<37> Sequitur ex predictis correlarie quod sensacio que est visio sit per tales piramides radiosas, quarum conus est in oculo, basis vero in re visa.

Probatur, quia fit per species visibiles visui impressas, ut dixit conclusio tertia. Et quia duplex est visibile, scilicet per se primum et per se secundum, ut dixit notabile tertium, sequitur quod ab utroque illorum species directe ad oculum facient diversas piramides, eo quod ille species a superficie lata visibilis egresse intrant conaliter ad glacialem, ubi est visio, sicque faciunt piramides. Et quia virtutes sive radii (quod idem est) egressi ab oculo iuvant ad visionem, ut dixit secunda pars conclusionis ultime, que virtutes seu radii sic se habent quod exeuntes a glaciali, dilatantur usque ad superficiem rei vise; sicque etiam faciunt piramidem. Per istas igitur tres piramides, quarum omnium conus est in oculo, basis vero in re visa, fiet visio; igitur correlarium verum.

<38> Unde dicit Philosophus in *De animalibus*: Non solum venit species rei ad visum secundum piramidem visualem, sed species visus ad rem secundum consimilem extensam. Unde idem libro X° et XI° *De animalibus* dicit: A re visa nichil venit nisi species eius, neque a visu ad rem visam venit aliud quam species visus; nihil enim exit de substancia oculi, quia corrumperetur, sed exit ab oculo conus piramidis et dilatatur eius basis super totam superficiem rei vise.

<Corollarium responsale>

<39> Correlarium: Questio, ut proponitur, est falsa.

<Notae variae quaestioni adiunctae>

<40> Virtus, ut dicit Philosophus 2° *Ethicorum*, est que habentem se perficit et opus eius omne bonum reddit; sic virtus equi ad currendum reddit cursum bonum etc. Secundo, contracte ad precedentem questio-

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309/310 *Cf. e.g.* Barth. Angl., *DPR III. 17, p. 168:* "[…] visus […] non videt nisi rem illam cuius partibus venit species super lineas rectas cadentes in centrum oculi, que omnes linee ducte a singulis partibus rei faciunt unam piramidem, cuius conus est in pupilla et basis in re visa […]." | **311/312** *Cf. §34.* | **312/313** *Cf. §23.* | **320/321** *Cf.* Barth. Angl., *DPR III. 17, p. 170 et §42 infra.* | **322/328** Unde dicit … rei vise] *Recte* Barth. Angl., *DPR III. 17, p. 169–170:* "Preterea secundum philosophum non solum venit species rei ad visum secundum piramidem visualem, sed species visus ad rem super consimilem piramidem extensam in eodem loco. Dicit etiam Aristoteles in XIX libro De animalibus quod nihil aliud est visum videre quam quod visus quod exeat ad rem visam. Et ideo vult Augustinus I libro Super Genesim et VI Musice. A re autem visa nihil venit nisi species eius, neque a visu ad rem venit aliud quam species eius; nihil enim exit de oculi substantia, quia corrumperetur, sed exit ab oculo conus piramidis, et dilatatur eius basis super totam superficiem rei vise." | **332/333** Aristoteles, *Eth. Nic. II. 5, p. 402 (1106a15–24); cf. Auct. Arist. XII. 37, p. 235:* "Virtus est habitus, quia habentem se perficit et opus ejus laudabile reddit."

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319 faciunt] *suprascr.* | **324** idem] ib *a.c.* | **333** omne] *coni.* ø *cod.*

nem, virtus corporis sensitivi est que corpus ipsum perficit et opus eius bonum reddit; virtus enim est ut ultimum et optimum qualitativum rei; igitur perficit rem. Et quia perficit ut qualitativum et per consequens ut dispositivum optime ad actum proprium, igitur opus eius bonum reddit. Sicque virtus sensitivi corporis opus corporis sensitivi perficit et reddit bonum in suo genere. Talis autem virtus est triplex, scilicet naturalis, vitalis et animalis. Vide in questione, si placet.

<41> | De lince qui videt per parietem vidi ymaginacionem; si habes H61v meliorem, bene; hec michi placet. Nota: Paries, licet sit corpus densum et compactum, tamen nihilominus est porosum; nec omnino caret perspicuitate, cum nullum corpus careat omnino perspicuitate, licet nos lateat, ut habetur ex 51ª *Perspective communis*, ubi eciam dicitur quod nulla densitas prohibet omnino transitum virtutum et specierum, ut patet de influencias celi, quas suscipit omne corpus. Et – cum oculus sit nature etheree, ut dicit notabile primum questionis predicte, eo quod lumen est sibi connatum, ut habetur ex *Perspectiva* – sicud igitur ether diversum est in natura in partibus suis (i.e. in stellis, nam alie sunt calide, alie frigide, alie lucide fortes habentes radios, alie vero debiles, ut patet de sole, mercurio etc.), sic et oculi diversam, ut ita dicam, habent naturam in diversis animalibus. Quedam enim animalia habent oculos multi et fortis luminis connati, ut sunt catti, lupi etc., qui eciam radios sensibiles ignitos quasi ex oculis suis emittunt qui in nocte videntur, qui radii fluentes ab oculis eorum sufficiunt dare virtutem multiplicativam coloribus, ut ab eis in nocte videri possint, ut habetur ex 46 *Perspective*. Quedam vero animalia habent lumen oculorum debile, propter quod debiles radii fluunt ex eorum oculis et talia in nocte non vident. Modo linx pre aliis animalibus habet lumen oculi multum et fortem et radii ab eius oculis emissi sunt valde fortes qui pertranseuntes parietem usque ad obiectum visibile parant viam speciebus visibilibus, ut confortentur

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341 *Cf. §14.* | **345/348** nullum corpus … omne corpus] *Cf.* Peckham, *Persp. comm. I. 51 (54), p. 132:* "Visum non fieri nisi per medium dyaphonum. Cuius ratio est quia species non multiplicantur nisi per corpora dyaphona […]. Quia tamen omne corpus est susceptivum influentie celestis, certum est nullum corpus omnino carere perspicuitate, cum sit communis superiori et inferiori corpori. Hinc est quod nulla densitas prohibet omnino transitum virtutum et specierum, quamvis nos lateat. Hinc linces videre dicuntur per medium parietem." *Cf. etiam* Tišnov, *Quodlibet, q. 46, fol. 133r.* | **348/349** *Cf. §8.* | **357/358** radii fluentes … *Perspective*] *Cf.* Peckham, *Persp. comm. I. 46 (49), p. 128–130:* "Aliquid tamen operantur radii [visuales ex oculo] in visu modo predicto, quod etiam patet quoniam visus in omnibus animalibus est unius rationis cum igitur quedam animalia per lumen oculorum suorum sufficiant coloribus virtutem multiplicativam dare ut ab eis nocte videri possint, sequitur ut lumen oculi aliquid in lumine operetur."

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339 corporis[1]] sensitivi bonum *add. sed del.* | **342** parietem] *coni.* pietem *cod.* | **349** questionis] *coni.* conclusionis *cod.* | **351** alie] aliam *a.c.*

et multiplicate pervenire possint ad oculum; sic quidem pervenientes ad oculum lincis faciunt sui visionem etc.

<42> Et sic auctor I° *Perspective* probat quod nihil videtur nisi per lucem orientem super rem visam ab eadem usque ad oculum multiplicatam. Unde necessario exigitur 3ª piramis, scilicet ipsius lucis. Et omnium istarum piramidum bases sunt in re visa, coni vero in oculis. Quando igitur visus habet species venientes super has 3ˢ piramides, tunc transit species lucis et coloris per medium tunicarum et humorum oculi ad humorem oculi etc.

<43> Nota: Obiectum sensibile per se habet duplex esse. Unum reale, secundum quod est in suo subiecto et corporaliter distat a sensu quo sentitur, et secundum hoc non multiplicat se in sensum. Aliud habet esse intencionale seu racionis, secundum quod est in sensu et multiplicat se in sensum. "Multiplicat" dico secundum speciem suam que est eius essencialis similitudo qua sentiri debet sicuti est.

366/372 Et sic auctor … oculi etc.] *Cf.* Barth. Angl., *DPR III. 17, p. 170:* "Item, probat auctor Perspective in libro I quod nihil videtur nisi per lucem orientem super rem visam ab eadem usque ad oculum multiplicatam. Unde necessario exigitur tertia piramis, scilicet ipsius lucis; et omnium istorum trium piramidum coni sunt in oculis, et bases in re visa. Quando ergo visus habet species venientes super has tres piramides, tunc transit species lucis et coloris per medium tunicarum et humorum oculi usque ad humorem cristallinum."

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369 coni] *suprascr.,* conus *a.c.* | **373** Nota] hic *in mg. sin., cf. fol. 60r (§30).* | **374/375** quo sentitur] *suprascr.*

ALENA HADRAVOVÁ & PETR HADRAVA

The Eclipse Instrument by John Šindel*

One of the "arts" taught within the framework of the seven liberal arts at medieval universities was astronomy. Lectures on this subject were given at the University of Prague from its very beginning in 1348[1]. In the period of its first flourishing, in the first half of the fifteenth century, Christian of Prachatice (Cristannus de Prachaticz, before 1360–1439)[2], John Šindel (Iohannes Andreae dictus Schindel, c. 1375–1456/1458) and Šindel's student John Borotín (Iohannes Borotin, 1378–1458)[3] were active there. This study aims to offer a contribution to our understanding of late medieval astronomy at the University of Prague by focusing on John Šindel and his eclipse instrument. In what follows, the reader will find basic information on Šindel's life and work, the different contemporary contexts of his work, our reconstruction and explanation of this tool and, last but not least, a critical edition thereof.

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1 Q. Vetter, *Šest století matematického a astronomického učení na universitě Karlově v Praze* [Six Centuries of the Teaching of Mathematics and Astronomy at Charles University in Prague], Praha, Královská česká společnost nauk, 1953.

2 A. Hadravová, P. Hadrava, *Křišťan z Prachatic: Stavba a užití astrolábu* [Christian of Prachatice: Composition and Use of the Astrolabe], Praha, Filosofia, 2001; cf. also A. Hadravová, P. Hadrava, "Prachaticz, Cristannus de", in N. Koertge (ed.), *New Dictionary of Scientific Biography*, New York, Charles Scribner's Sons, 2008, vol. 6, p. 153–154.

3 C. Burnett, "Teaching the Science of the Stars in Prague University in the Early Fifteenth Century: Master Johannes Borotin", in *Aithér*, 8 (2014), p. 9–50; A. Vidmanová, "Borotínovy dopisy Rokycanovi [Borotín's Letters to Rokycana]", in J. K. Kroupa (ed.), *Septuaginta Paulo Spunar oblata*, Praha, Koniasch Latin Press, 2000, p. 410–419; A. Vidmanová, "Druhý dopis Mistra Jana Borotína Rokycanovi [Master John Borotín's Second Letter to Rokycana]", in *Listy filologické*, 120 (1970), p. 281–289.

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1. John Šindel's Biography

John Šindel was born around the year 1375 in the town of Hradec Králové in eastern Bohemia. His name was Jan Ondřejův in Czech (in Latinized form, Iohannes Andreae), but he became better known under the nickname Šindel (which means "shingle"); references to him as Iohannes Bohemus, Iohannes Pragensis and Dux can also be found. He studied at the University of Prague, where he obtained the degrees of bachelor in 1395 and master (*magister artium*) in 1399. He became rector of the school at St. Nicholas in the Lesser Town of Prague in 1406. He then moved to Vienna, where he studied medicine at the university, and at the same time taught mathematics outside of the university. Soon after he came back to Prague, he became a professor of astronomy at the university, and in 1410 a doctor of medicine, personal physician to the Bohemian King Wenceslas IV and rector of the university (replacing John Hus in this position). Like Christian of Prachatice, John Šindel was a friend of John Hus. On the basis of two copies of John Šindel's letters contained in MS Vienna, ÖNB, Cod. 4902 and devoted to the defense of John Hus, it has been claimed in older literature that in the period of his rectorship in 1410, Šindel refused in the name of the University to agree to burn John Wyclif's treatises in the name of university as ordered by Archbishop Zbyněk Zajíc of Házmburk. However, a philological analysis of about thirty letters from this Viennese codex – including those by Šindel – has revealed that this is a set of dummy texts, rhetorical exercises composed by students under the supervision of masters[4]. It seems that in fact Šindel avoided theological quarrels and preferred to deal with science. He was not very engaged in the disputes characteristic of the period of the Hussite Revolution, and he stayed faithful to the Catholic Church. From 1418 he was a canon of the Prague Chapter, but he spent the period of the Hussite Wars in exile. First, he lived at Olomouc in Moravia, and then from 1423 until about 1436 in Nuremberg. He was a town *medicus*, and one of the most respected and best-paid persons, there. From 1432 he was also private physician to the Emperor Sigismund. It can be speculated that John Šindel curated a collection of astronomical manuscripts and instruments belonging to the Bohemian Kings (Přemysl Ottokar II and his successors on the throne up to Wenceslas IV). This collection was moved to Nuremberg to be protected from the danger of damage in politically unstable Bohemia. In 1444 Nicholas of Cusa bought this set, and since that time it has been kept in the Stiftsbibliothek of St. Nikolaus-Hospital in the German town of Bernkastel-Kues[5]. After coming back to Prague, Šindel be-

4 B. Kopičková, A. Vidmanová, *Listy na Husovu obranu z let 1410–1412 – Konec jedné legendy?* [Letters in Support of Hus's Defense from 1410–1412 – The End of a Legend?], Praha, Karolinum, 1999, p. 59–61 and *passim*. Aleš Pořízka had expressed a polemical standpoint on this work in A. Pořízka, "Listy na obranu Husovu ze 12. září až 2. října 1410. Konec druhé legendy? [Letters in Support of Hus's Defense from 12th September to 2nd October 1410. The End of Another Legend?]", in *Český časopis historický*, 99 (2001), p. 700–724.

5 A. Hadravová, P. Hadrava, *Sphaera octava. I. Remarks on Ancient and Medieval Tradition of Constellations. II. Ptolemaic Celestial Globe from Bernkastel-Kues*, Leiden / Boston, Brill, in preparation. Czech version: *Sphaera octava. Mýty a věda o hvězdách I–IV* [*Sphaera octava*. Myths and Science about the Stars I–IV], Praha, Artefactum – Academia, 2013.

came dean of the Vyšehrad Chapter in Prague. In 1443 he donated 200 manuscripts to the university, which testifies to his wealth. He died in or after 1456. John Šindel is often claimed to have been the astronomical advisor of clockmaker Nicholas of Kadaň (Mikuláš z Kadaně in Czech, Nicolaus de Kadan in Latin), the constructor of the Prague Astronomical Clock (horologium, orloj) in 1410[6]. This, however, has not been proven, and it seems rather to be a reflection of his fame, which persisted for centuries[7].

2. Contemporary Contexts of Šindel's Eclipse Instrument

John Šindel is renowned as a mathematician and astronomer. He was already highly esteemed in this respect in his time; e.g. Enea Silvio Piccolomini (Pope Pius II) mentioned him as an excellent mathematician[8]. Šindel's observations made in Prague were appreciated by Tycho Brahe[9]. As early as during his first stay in Vienna in 1407, John Šindel was in frequent contact with John of Gmunden (around 1380–1442)[10]. Together with Georg Müstinger, the prior of Klosterneuburg monastery, both John of Gmunden and John Šindel were leading members of the first Viennese school of mathematics, astronomy and cartography that was active 1420–1442[11]. Owing to their

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6 Z. Horský, *Pražský orloj* [The Prague Astronomical Clock], Praha, Panorama, 1988; Z. Horský, E. Procházka, "Pražský orloj [The Prague Astronomical Clock]", in *Acta historiae rerum naturalium necnon technicarum*, 9 (1964), p. 83–146.

7 A. Hadravová, P. Hadrava, "Zázemí staroměstského orloje v pražské astronomické škole [The Background of the Old Town Astronomical Clock in the Prague Astronomy School]", in *Pokroky matematiky, fyziky a astronomie*, 54 (2009), p. 276–280; P. Hlaváček, "Jan Šindel († 1456)", in P. Hlaváček et alii, *Kacířská univerzita. Osobnosti pražské utrakvistické univerzity 1417–1622*, Praha, Univerzita Karlova a Filozofická fakulta, Togga, 2013, p. 39–41; P. Skála, "Nepřesnosti v konstrukci původního astrolábu staroměstského orloje [Inaccuracies in the Construction of the Original Astrolabe of the Old Town Astronomical Clock]", in *Pokroky matematiky, fyziky a astronomie*, 3 (2013), p. 187–197.

8 Vetter, *Šest století*, p. 80–95, or F. Šmahel, "Enea Silvio Piccolomini and His Historia Bohemica", in *Aeneae Silvii Historia Bohemica*, eds. D. Martínková, A. Hadravová, J. Matl, Praha, Koniasch Latin Press, 1998, p. lxxiv–lxxv.

9 See A. Hadravová, P. Hadrava, "Tycho Brahe and Iohannes Šindel", in J. R. Christianson, A. Hadravová, P. Hadrava, M. Šolc (eds.), *Tycho Brahe and Prague: Crossroads of European Science*, Proceedings of the International Symposium on the History of Science in the Rudolphine Period, Prague, 22–25 October 2001, Frankfurt am Main, Harri Deutsch Verlag, 2002, p. 237–247.

10 See P. Uiblein, "Zu den Beziehungen der Wiener Universität zu anderen Universitäten im Mittelalter", in J. Ijsewijn, J. Paquet (eds.), *The Universities in the Late Middle Ages*, Leuven, Leuven University Press, 1978, p. 18.

11 See R. Klug, "Johannes von Gmunden, der Begründer der Himmelskunde auf deutschem Boden", in *Sitzungsberichte der Akademie der Wissenschaften in Wien. Phil.-hist. Klasse*, 228–4 Abh. (1943), p. 11; D. B. Durand, *The Vienna-Klosterneuburg Map Corpus of the Fifteenth Century, A Study in the Transition from Medieval to Modern Science*, Leiden / Boston, Brill, 1952, esp. p. 41–44; F. Wawrik, "Österreichische kartographische Leistungen im 15. und 16. Jahrhundert", in G. Hamann, H. Grössing (eds.), *Der Weg der Naturwissenschaft von Johannes von Gmunden zu Johannes Kepler*, Wien, Verlag der Österreichischen Akademie der Wissenschaften, 1988, p. 105. To John of Gmunden see also e.g. R. Simek, K. Chlench (eds.), *Johannes von Gmunden (c. 1384–1442). Astronom und Mathematiker*, Wien, Fassbaender, 2006; K. Chlench, *Johannes von Gmunden deutsch. Der Wiener Codex 3055. Deutsche Texte des Corpus as-*

mutual cooperation, John Šindel and John of Gmunden were sometimes confused in the manuscripts (*Iohannes Schindel de Gamundia*)[12], despite their identities being clearly distinguishable. Their works on a treatise on the instrument called the "albion", which was invented and described by Richard of Wallingford (c. 1292–1336), are an example of their common interests[13]. The albion was a universal instrument which was comprised of various types of aequatoria, as well as an astrolabe. Its name means "all by one" ("al-bi-on" in old English), which is both an acronym of its complexity and a tribute to the abbey of St. Albans where Richard of Wallingford lived. John of Gmunden wrote his own version of this treatise, which is approximately one half longer than Richard's original text[14]. The numerous additional explanations, as well as stylistic differences, reveal that John of Gmunden's intended audience was university students.

In two manuscript volumes containing John of Gmunden's version of the treatise on the albion there is also another treatise on an instrument developed from Richard of Wallingford's albion; it is entitled *Canones pro eclipsibus Solis et Lune per instrumentum ad hoc factum inveniendis Magistri Iohannis Schindel* which may be translated as *The Canons for Finding the Eclipses of the Sun and Moon through the Instrument made for This by Master John Šindel*[15]. This Šindel's text is extant in MS Vienna, ÖNB, Cod. 5415, fols 133r–141r (dated c. 1440, siglum *A* of our edition)[16] and

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tronomicum aus dem Umkreis von Johannes von Gmunden, Wien, Fassbaender, 2007; A. Hadravová, P. Hadrava, "John of Gmunden", in T. Hockey et alii (eds.), *Biographical Encyclopedia of Astronomers*, vol. I, New York / Heidelberg, Springer, 2007, p. 596–597; R. Simek, M. Klein (eds.), *Johannes von Gmunden (c. 1385–1442). Zwischen Astronomie und Astrologie*, Wien, Fassbaender, 2012.

12 See, e.g., MS Vienna, ÖNB, Cod. 5412, fol. 155v.

13 See J. D. North, *Richard of Wallingford. An Edition of his Writings with Introductions, English Translation and Commentary*, 3 vols, Oxford, Clarendon Press, 1976. The treatise on the albion (*Tractatus albionis*) is in vol. I: *Texts and translations*, on p. 245–401. See also J. D. North, *God's Clockmaker. Richard of Wallingford and the Invention of Time*, London / New York, Hambledon and London, 2005. Cf. also P. Hadrava, A. Hadravová, "Das Albion des Richard von Wallingford und seine Spuren bei Johannes von Gmunden und Johannes Schindel", in R. Simek, K. Chlench (eds.), *Johannes von Gmunden (c. 1384–1442), Astronom und Mathematiker*, Wien, Fassbaender, 2006, p. 161–168.

14 The great number of copies shows that this version was widely used in Austria and Bavaria. Two of them, MS Vienna, ÖNB, Cod. 5412, fols 106v–160v (c. 1430–1440?) and MS Vienna, ÖNB, Cod. 5296, fols 73r–105r have been taken for our informative edition (not published).

15 A. Hadravová, "Jan Šindel a jeho traktát Pravidla pro výpočet zatmění Slunce a Měsíce [John Šindel and His Treatise. Rules for Calculating Solar and Lunar Eclipses]", in A. Hadravová, P. Hadrava (eds.), *Astronomie ve středověké vzdělanosti, Sborník ze semináře pořádaného VCDV, AsÚ a CMS 19. června 2002*, Praha / Ondřejov, Výzkumné centrum pro dějiny vědy, 2003, p. 46–55.

16 A short treatise on lunar parallax (inc. *Quemlibet angulum ex coincidencia circuli altitudinis cum circulo signorum apud punctum medians celum notum esse oportet*) which is also dependent on the *Albion* by Richard of Wallingford, follows on fols 141r–145r; cf. North, *Richard of Wallingford*, II, p. 136. According to the Mittelalterliche Handschriften in Bibliotheken Österreichs (www.manuscripta.at) database, MS Vienna, ÖNB, Cod. 5415 contains these items: *Tractatus de instrumento albion*; *Canones pro eclipsibus Solis et Lune* (in the cited database, this work is incorrectly attributed to Johannes von Gmunden rather than John Šindel); *Tractatus de composicione spere solide anno 1435*; *Tractatus de spera volubili*; *Tabule stellarum fixarum 1002*; *Versus memoriales de signis celestibus*; *Tabule stellarum fixarum 1002, supplementum*; Hyginus, *De astronomia*; Beda Venerabilis, *De signis celi*; *Capitulum de Lacteo circulo*. Cf. the description of this manuscript by F. Unterkircher, *Die datierten Handschriften der Österreichischen Nationalbibliothek von 1401 bis 1450*. Vol. 1: *Textband*, vol. 2: *Tafelband*, Wien, Verlag der

MS Vienna, ÖNB, Cod. 5412, fols 161r–169r (dated to the middle of the fifteenth century, siglum *B*)[17], as well as in MS Nuremberg, Stadtbibliothek, Cent. V. 58, fols 116vb–121va (dated to the middle of the fifteenth century, siglum *C*)[18], where it is preceded by the original text of Richard of Wallingford's *Albion*[19]. It is unclear when exactly Šindel's work originated. Šindel's treatise describes an eclipse instrument, which, in his own words, is extracted from the albion. This instrument, like other aequatoria, was a kind of nomogram for the graphical solution of astronomical problems. It consisted of two parts – the first enabling one to calculate the motions of the Sun and Moon and their positions at syzygies (i.e. at the time of new and full moons)[20]. The second then enabled one to find the quantitative values for a solar or lunar eclipse. In contrast to the didactic style of John of Gmunden's version of the treatise on the albion, Šindel's treatise on the eclipse instrument is rather technical.

österreichischen Akademie der Wissenschaften, 1971, p. 145, and also by A. Haidinger, *Verborgene Schönheit. Die Buchkunst im Stift Klosterneuburg. Katalog zur Sonderausstellung 1998 des Stiftsmuseums Klosterneuburg*, Klosterneuburg / Wien, Verlag Mayer et Comp., 1998.

17 A short treatise on lunar parallax follows on fols 169r–174r. According to the Mittelalterliche Handschriften in Bibliotheken Österreichs (www.manuscripta.at) database, MS Vienna, ÖNB, Cod. 5412 contains in addition to several minor astronomical treatises the following items: *Tractatus de instrumento albion dicto*; Iohannes de Gmunden, *Tabulae stellarum fixarum partim verificate per Georgium, prepositum Neuburgensem*; *Canones pro eclipsibus Solis et Lune* (in the cited database, this work is again attributed to John of Gmunden); *Canones de temporibus coniunccionum et opposicionum cum tabulis*; *Tractatus de spera solida sive de astrometro sperico, compositus anno 1303, cum commentario*; *Capitulum de Lacteo circulo*. See a description of the manuscript in *Tabulae codicum manu scriptorum, praeter Graecos et orientales in Bibliotheca Palatina Vindobonensi asservatorum*, ed. Academia Caesarea Vindobonensis, vol. IV, Cod. 5001–6500, Wien, 1870, p. 118–119.

18 See the description of the manuscript in I. Neske, *Die Handschriften der Stadtbibliothek Nürnberg. Bd. 4: Die lateinischen mittelalterlichen Handschriften. Varia: 13.–15. und 16.–18. Jh.*, Wiesbaden, Harrassowitz, 1997, p. 91–93.

19 In MS Vienna, ÖNB, Cod. 5412, there is on fol. 157r a table of stars inscribed: "Tabula stellarum fixarum cepta ex spera solida composita et verificitata per venerabilem in Christo priorem […] Georgium, prepositum Neuburgensem, anno Christi 1432 completo." ("A table of fixed stars taken from the globe made and verified by honorable prior in Christ […] Georg, superior of Neuburg, finished in the year 1432.") This means that a table prepared by the prior of Kloster-Neuburg, Georg Müstinger, was also included to complement a collection of works by the members of the aforementioned first Viennese astronomical school. Similarly, on fol. 160v, still within John of Gmunden's treatise, there is another table prepared at Nuremberg by John Šindel.

20 P. Hadrava, A. Hadravová, "Tabulka ekvací Měsíce z latinské encyklopedie Pavla Žídka a její srovnání s Almagestem, Toledskými a Alfonsinskými tabulkami [Table of Equations of the Moon from the Latin Encyclopedia of Paul Žídek and its Comparison with the Almagest, Toledo and Alfonsine Tables]", in *Dějiny vědy a techniky*, 41 (2008), p. 65–84; P. Hadrava, A. Hadravová, "Nová akvizice Národní knihovny a její význam pro dějiny astronomie [A New Acquisition of the National Library and its Meaning for the History of Astronomy]", in *Dějiny vědy a techniky*, 50 (2017), p. 192–208; R. L. Kremer, "John of Murs, Wenzel Faber and the Computation of True Syzygy in the Fourteenth and Fifteenth Centuries", in J. W. Dauben, A. Kühne, P. Kunitzsch, R. P. Lorch (eds.), *Mathematics Celestial and Terrestrial – Festschrift für Menso Folkerts zum 65. Geburtstag*, Halle an der Saale / Stuttgart, Wissenschaftliche Verlagsgesellschaft, 2008, p. 147–160; J. Chabás, B. R. Goldstein, *The Alfonsine Tables of Toledo*, Dordrecht, Kluwer, 2003; J. Chabás, B. R. Goldstein, "Early Alfonsine Astronomy in Paris: The Tables of John Vimond (1320)", in *Suhayl*, 4 (2004), p. 207–294; R. L. Kremer, "Wenzel Faber's Table for Finding True Syzygy", in *Centaurus*, 45 (2003), p. 305–329.

One can find drawings which correspond well to the description of Šindel's eclipse instrument in several manuscripts, including MS Vienna, ÖNB, Cod. 2332 from the fifteenth century. This manuscript contains among other works the *Albion* by Richard of Wallingford and astronomical tables, many of which are attributed to John of Gmunden. However, the drawings belong to a thus far unedited treatise on the calculation of eclipses (fols 222r–233r) which is not identical with those by Richard of Wallingford, John of Gmunden or John Šindel[21]. Similar figures are also depicted in manuscript Vatican, BAV, Pal. lat. 1396 from around the year 1500[22]. This codex contains various (not only astronomical) works, e.g. various tables, treatises on quadrants and other instruments such as an instrument for the calculation of conjunctions and oppositions of the Sun and Moon. Carefully drawn figures for a calculation of the solar and lunar eclipses on fols 27r–v are surrounded by an astrological treatise, which is written cursorily in the free space around the drawings. This treatise also deals with eclipses and includes fragmentary quotations from texts related to the albion. Fols 28r–30r contain tables of mean motions which start with the year 1408. A nomogram for finding "equations" of planets (*equaciones planetarum*) is drawn on fol. 31r. Starting from fol. 30v, another text on an instrument for finding the true motion of planets (*verum motum planetarum*), and conjunctions and oppositions of the Sun and Moon (*coniuncciones et opposiciones Solis et Lune*), is included. This text is no longer related to the figures on fol. 27r–v. Another pair of such figures on eclipses without an explanation can be found in the manuscript Oxford, Bodleian Library, Savile 100, fol. 3r–v[23].

Šindel's treatise on the eclipse instrument was followed more than one century later by John Schöner (1477–1547), the well-known editor of the works of many astronomers, including Regiomontanus, Walther and others. In Schöner's work *Opera mathematica* published posthumously by his son in Nuremberg in 1551[24] and 1561, different astronomical instruments are described. Among them we can find on fols 26r–35r (E2r–F5r) a text on an instrument entitled *Aequatorium astronomicum Ioannis Schoneri, mathematici Norici, cum novis canonibus et figuris sphaerarum singularum*. Schöner's text describes an instrument which is practically identical with Šindel's eclipse instrument. This is clearly seen by a comparison of the parts of the instruments for the calculation of lunar and solar eclipses as depicted in woodcuts in Schöner's book (cf. Figs 5 and 6) with our reconstructions of the instrument according to the descriptions in Šindel's treatise (cf. Figs 3 and 4) which does not contain any drawing in the three known manuscripts.

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21 *Tabulae codicum manu scriptorum*, Vol. II, Cod. 2001–3500, Wien, 1868, p. 58; E. Zinner, *Verzeichnis der astronomischen Handschriften des deutschen Kulturgebietes*, München, C. H. Beck, 1925, Nr. 03702 to fols 222r–232v; B. P. de Mateo, *Les tables astronomiques de Jean de Gmunden: édition et étude comparative*, Paris, Diss. École pratique des hautes études, Sciences historiques et philologiques, 2003. Other literature on this codex is carefully collected at www.manuscripta.at.

22 This manuscript has been digitized by the Universitäts-Bibliothek Heidelberg. It is accessible from: https://digi.ub.uni-heidelberg.de/diglit/bav_pal_lat_1396 and https://digi.vatlib.it/view/MSS_Pal.lat.1396.

23 See North, *Richard of Wallingford*, II, p. 277–278; III, p. 221.

24 Iohannes Schöner, *Opera mathematica*, Nuremberg, in officina Ioannis Montani & Ulrici Neuber, 1551; e.g. MS Prague, NK ČR, 14 B 40.

Schöner's figures are thus a very valuable help in confirming an understanding of Šindel's eclipse instrument[25].

Schöner's description is organized in a manner which differs from Šindel's treatise. However, in many parts it is very close to, and in some places exactly the same as, Šindel's text. Despite both of these texts being developed from Richard of Wallingford's *Albion*, as well as the version by John of Gmunden, it is obvious that Schöner is dependent on Šindel's eclipse instrument and not directly on the *Albion*. There are no traces in Schöner's *Aequatorium* of any part of Richard's *Albion* that one cannot also find in Šindel's eclipse instrument. The following examples from all four texts illustrate well the relationship between them.

Richard of Wallingford[26]	John of Gmunden[27]	John Šindel[28]	John Schöner[29]
Si vero computaveris arcum anguli predicti *in quarta circuli* a linea cordarum versus lineam minutorum, et *per motum rote* feceris filum limbi ab almuri predicto extendi orthogonaliter super lineam minutorum, quod fuerit *inter ipsum filum et centrum rote*, erit diversitas aspectus in latitudine verissime.	Si vero computaveris arcum predicti anguli *in quarta circuli* a linea cordarum versus lineam minutorum et {feceris} *per motum rote* feceris filum limbi contingens almuri predictorum extendi orthogonaliter super lineam minutorum, et quod fuerit *inter ipsum filum et centrum rote*, erit diversitas aspectus in latitudine verissime.	Si vero computaveris arcum anguli predicti *in eadem quarta semicirculi in circulo argumenti Lune predicto in contrarium* a linea cordarum, *scilicet AC*, vel ab A versus lineam minutorum casus, *scilicet versus B, tunc super quam lineam de lineis* transversalibus *predictis almuri ceciderit, illa linea ostendit in linea minutorum casus numerum minutorum diversitatis aspectus Lune in latitudine verissime.*	Si vero computaveris quantitatem arcus predicti anguli *in eadem quarta semicirculi in circulo argumenti Lune praedicto in contrarium* a linea meridiana, *scilicet GB*, versus lineam minutorum, *scilicet AC, tunc super quam lineam de* orthogonalibus *praedictis almuri ceciderit, illa linea ostendet in linea minutorum casus numerum minutorum diversitatis aspectus Lunae in latitudine verissimae.*

The similarity of each pair of texts and the wider relationship between them is even clearer in another example.

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25 North, *God's Clockmaker*, p. 369, reprints figures of the solar and lunar eclipse instrument from Schöner's *Opera mathematica* 1551. He claims that they can also be found in Iohannes Schöner, *Aequatorium astronomicum*, Bamberg, Schöner, 1521, cf. VD16 ZV 13995 (*Verzeichnis der Drucke des 16. Jahrhunderts*, accessible from: https://www.bsb-muenchen.de/sammlungen/historische-drucke/recherche/vd-16/), but this is not true (cf. digitized copy accessible from: https://digital.bib-bvb.de/view/bvbmets/viewer.0.6.1.jsp?folder_id=0&dvs=1502350234041~930&pid=166910&locale=cs&usePid1=true&usePid2=true#). For the *aequatorium astronomicum* cf. R. L. Kremer, "Experimenting with Paper Instruments in Fifteenth- and Sixteenth-Century Astronomy: Computing Syzygies with Isotemporal Lines and Salt Dishes", in *Journal for the History of Astronomy*, 42 (2011), p. 223–258, esp. p. 255, note 27.

26 North, *Richard of Wallingford*, I, p. 374, Utilitas 30.

27 Iohannes de Gmunden, his enlarged version of Wallingford's *Albion*, MS Vienna, ÖNB, Cod. 5412, fol. 140v (III,32), unpublished.

28 Iohannes Schindel, *Canones pro eclipsibus*, III, 7.

29 Iohannes Schöner, *Opera mathematica*, fol. 29r (E5r).

Richard of Wallingford[30]	John of Gmunden[31]	John Šindel[32]	John Schöner[33]
Quod si placuerit, cordam rectam a radice fili limbi computa arcum duplicem arcui tuo, et ad eius finem applica filum limbi, et pone ibi almuri in circulo medio communi circulo altitudinis et zodiaci limbi primi. Deinde remove filum super lineam cordarum, et filum cadet super cordam quesitum, si a radice fili limbi computaveris.	Quod si placet ad habendum cordam rectam, computa a radice limbi arcum duplicem arcui tuo et ad finem applica filum limbi et pone almuri, quod est in eodem filo in circulo medio communi circulo altitudinis et zodiaci limbi primi. Deinde move ipsum filum super lineam cordarum et tunc almuri (*suprascr.:* filum) cadet super cordam quesitam, si a radice fili limbi computaveris.	Pone filum lymbi super arcum datum in semicirculo cordarum et ibidem situetur almuri. Deinde transfer idem filum super lineam cordarum et almuri ostendit numerum graduum et minutorum sinus quesiti a radice fili computando et hoc est (est *C* : est verum *AB*), si arcus datus fuerit minus 90 gradus; si vero plus 90 fuerit, tunc illud, quod est ultra 90, computa econverso ab A versus B et pone ibidem almuri (almuri *AB* : alumri *C*). Deinde transfer filum ad lineam cordarum et almuri ostendit numerum graduum arcus predicti (predicti *C*: predictis *AB*) a radice fili computando.	Pone filum limbi super arcum datum in semicirculo arcuum et ibidem situetur almuri. Deinde transfer idem filum super lineam chordarum et almuri ostendit numerum graduum et minutorum sinus quaesiti a radice fili computandum et hoc est verum, si arcus datus fuerit minor 90 graduum. Si vero maior 90 fuerit, tunc illud, quod plus est 90, computa econverso ab A versus B et ibidem pone almuri. Deinde transfer filum ad lineam chordarum et almuri, quod ostendit numerum graduum sinus arcus praedicti a radice fili computando.

Schöner skipped a subsequent section on *sinus versus* that is present in all three of the previous texts, but he added an example introduced by the characteristic phrase *in dato (proposito) exemplo*:

> Sinus rectus *in dato exemplo* altitudinis Solis et Lunae est 39 graduum fere altitudinis autem medii coeli, 32 quasi graduum. Distantiae nonagesimi gradus ab ascendente a zenith capitum est 47 ferme graduum. Distantiae autem loci coniunctionis a zenith capitum 46 graduum[34].

3. Explanation and Reconstruction of Šindel's Eclipse Instrument

Šindel's instrument for calculating eclipses of the Sun and Moon is a nomogram which enabled one to read on its scales the values of some quantities needed for the calculation, instead of interpolating them in tables. The procedure of the calculation was based on a simplified Ptolemaic model. It took into account the first anomaly of

30 North, *Richard of Wallingford*, I, p. 370, Utilitas 26.
31 Iohannes de Gmunden, MS Vienna, ÖNB, Cod. 5412, fol. 139v (III,28).
32 Iohannes Schindel, *Canones pro eclipsibus*, III,1.
33 Iohannes Schöner, *Opera mathematica* 1551, fol. 28r (E4r).
34 Iohannes Schöner, *Opera mathematica* 1551, fol. 28r (E4r).

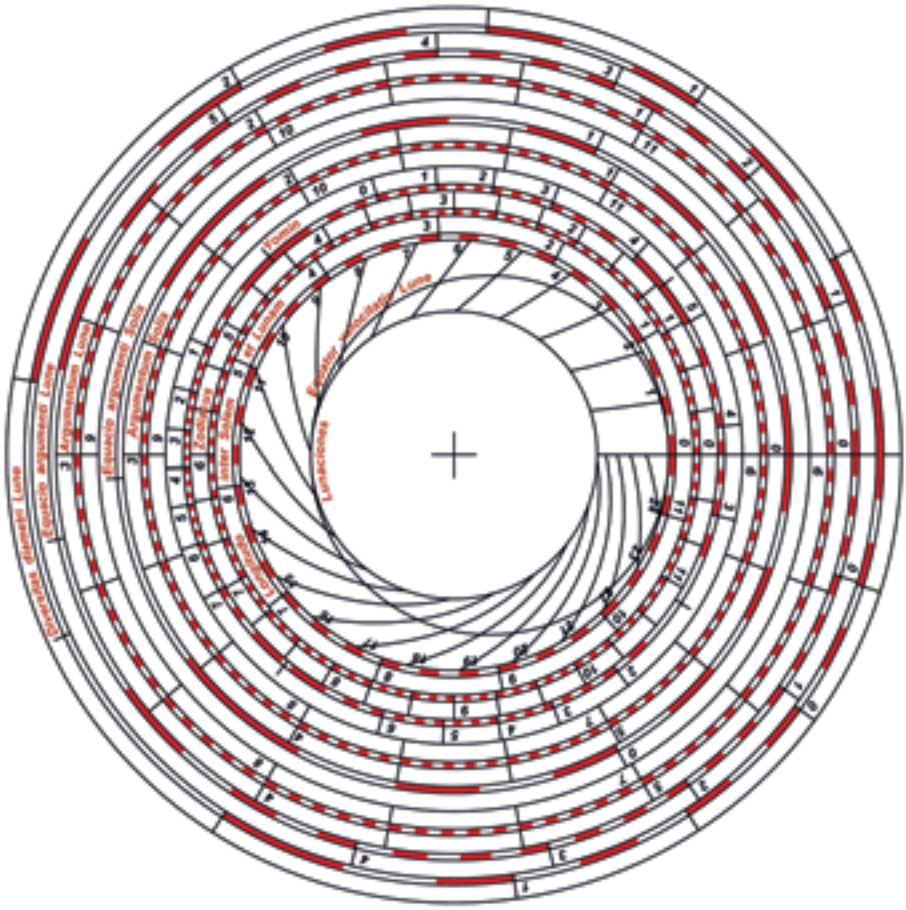

Fig. 1. Reconstruction of the first plate of Šindel's eclipse instrument: the front side

the Sun and the first and second anomalies (i.e. the evection) of the Moon. The principle of the instrument can be understood from Šindel's explanation of its individual scales. The outermost scale on the front side of the first plate gives the "difference" of the Moon's diameter (*diversitas diametri Lune*) and the second scale on its rear side gives minutes of proportion (*minuta proporcionalia*). The product of these two quantities approximates the evection according to Ptolemy's *Almagest* V,7–9[35]. It is shown in *Almagest* V,10 that this correction is small close to syzygy. Nevertheless, it is generally non-zero due to the difference between the true and mean syzygy, and can thus be added to the first anomaly of the Moon as suggested in chapter I.5 of the description of Šindel's instrument. John of Gmunden claimed in his version of *Albion* (MS Vienna, ÖNB, Cod. 5412, fol. 96r /chapter II,7/) that this correction is

35 Hadrava, Hadravová, "Tabulka ekvací Měsíce", p. 65–84.

zero ("et nulla est equatio centri nec minuta proportionalia, ne diversitas dyametri, ut patet ex theoricis"), while Richard of Wallingford does not mention it at all.

The front side of the first circular plate (cf. Fig. 1) described in chapter I,1 is used for calculation of the true syzygies, i.e. the new moon (*novilunium*) and full moon (*plenilunium*). The tables of mean motions provided the times and ecliptic longitudes of the luminaries (i.e. the Sun and Moon) in linear approximation, as well as the positions of the apogees (of the supposedly circular orbits of the luminaries) and the nodes of the lunar orbit. However, due to the aforementioned irregularities, the Sun and Moon can be advanced or delayed in their ecliptic longitudes at the moment of the mean syzygy for the "equation of the longitude" which can be found on scales nos. 5 and 7 of the limb of the first side as a function of the arguments (i.e. distances from the apogees) plotted on scales nos. 4 and 6 for the Sun and Moon, respectively[36]. The consequent distance between the longitudes of the Sun and the Moon needs some time to be overcome by the faster Moon. The difference in velocity depends on the argument of the Moon (if the velocity of the Sun is approximated as being constant). In the Ptolemaic model of a simple epicycle or eccentric circle the angular velocity of the Moon reads

$$v = u\,(1 + e\cos a)\,/\,(1 + e^2 + 2\,e\cos a),$$

where u is the mean velocity, e the eccentricity and a the mean anomaly of the lunar orbit. In apogee and perigee, where $\cos a = \pm 1$, we can find that $v = u\,/\,(1 \pm e)$, i.e. the velocity is inversely proportional to the distance of the Moon and hence directly proportional to the angular diameter of its disc. The time difference between the mean and the true syzygy can thus be found using a thread fixed in the center of the plate with a sliding bead as a pointer: the thread is turned to the argument of the Moon found on the zodiac in the second scale of the *limbus*, the bead is set to the radius given by the eccentric curve of the "equator of velocity", the thread is then shifted to the distance between the luminaries on the first scale, and the bead will show the temporal delay of the true syzygy between the innermost spiralling lines of hours. Such a nomogram (without the additional outer scales) can be found e.g. in MS Vatican, BAV, Pal. lat. 1396, fol. 33r[37]. In medieval practice, such lines (e.g. the non-equal hours on the astrolabe) were often approximated by circles fitted to the calculated points (two at the extremes and one in the middle). Our simulation calculated in many shorter steps reveals that the circular approximation could be sufficient.

According to Šindel's description in chapter I,4, the nomogram on the rear side of the first plate of his instrument (cf. Fig. 2) was designed to display the linear

36 Actually each pair of scales of an independent and dependent variable could be distorted in an arbitrary way. Because we do not have a template for these scales, we chose an equidistant division of the arguments, which are thus identical, so that either could be used to find the first equations of both luminaries and the other would not be needed. It is, however, possible, that the scales were plotted similarly to the ecliptic latitude of the Moon on the second part of the instrument.

37 Accessible from: https://digi.ub.uni-heidelberg.de/diglit/bav_pal_lat_1396/0069.

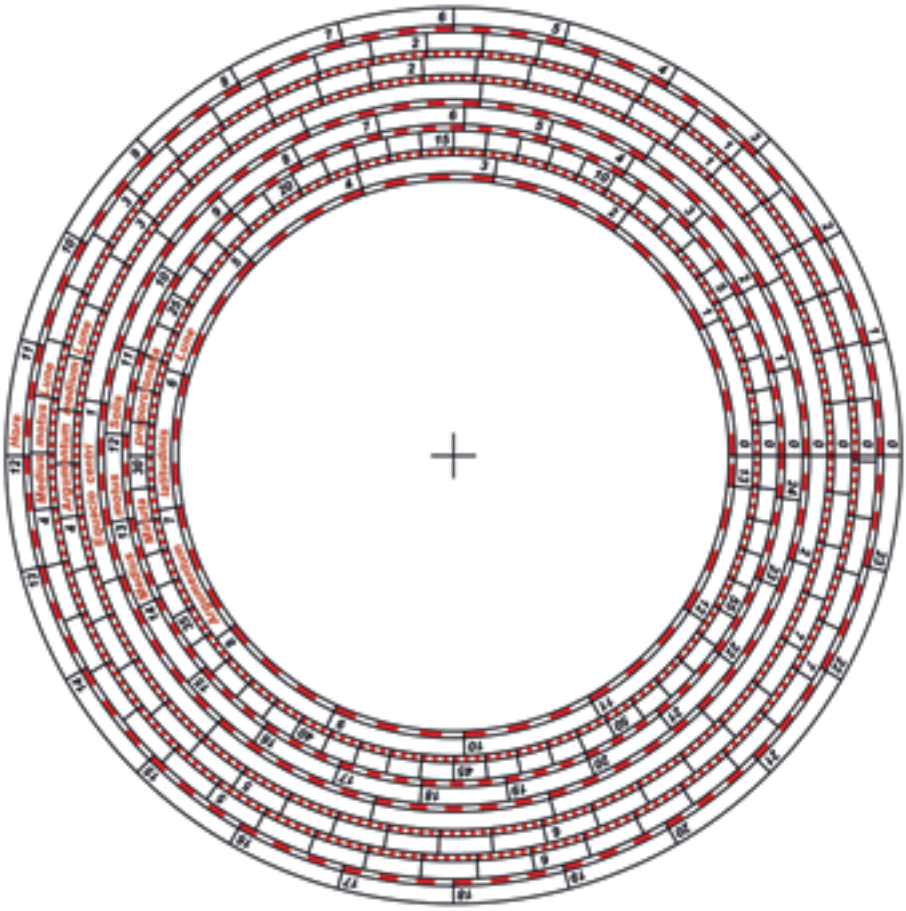

Fig. 2. Reconstruction of the first plate of Šindel's eclipse instrument: the rear side

dependence of the corrections of various quantities on the time between the mean and true syzygy. In our virtual reconstruction of this figure, we use the numerical values given in the text; since Šindel does not specify the rate of argument of the lunar latitude, we determined it based on the nodal month.

The second part of the instrument (described starting from Šindel's chapter II,1) consists of one circular plate on which two semicircular nomograms are designed – one for the calculation of the eclipse of the Moon (cf. Fig. 3) and the other for the eclipse of the Sun (cf. Fig. 4). Drawings of very similar nomograms for the Moon can be found in MS Vienna, ÖNB, Cod. 2332, fol. 223r, Vatican, BAV, Pal. lat. 1396, fol. 27v[38], MS Oxford, Bodleian Library, Savile 100, fol. 3r[39] and in

38 Accessible from: https://digi.ub.uni-heidelberg.de/diglit/bav_pal_lat_1396/0058.

39 See North, *Richard of Wallingford*, II, p. 277–278 and plate X in vol. III.

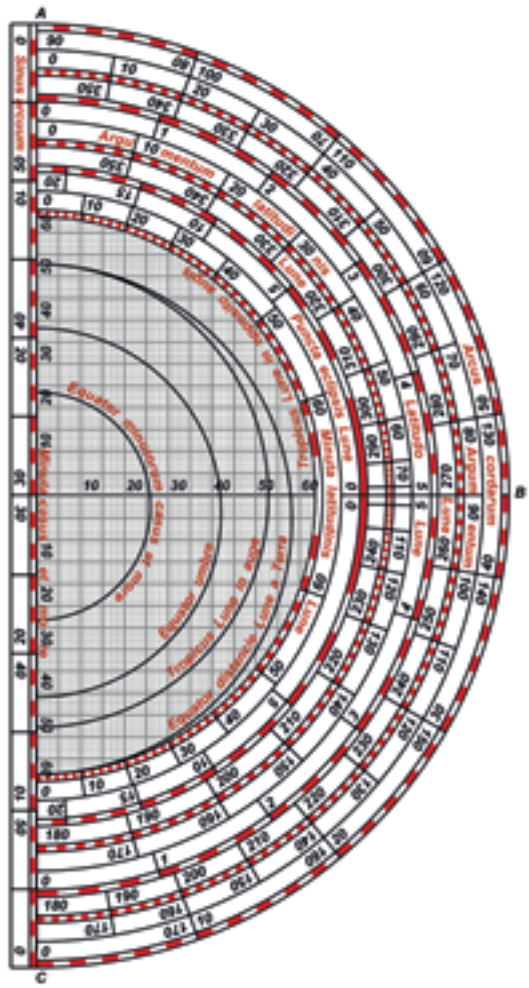

Fig. 3. Reconstruction of the second plate of Šindel's eclipse instrument: figure for calculations of lunar eclipses

Schöner's *Opera mathematica*, fol. 34v (F4v) (cf. Fig. 5). The drawings for the Sun are in the same works: in MS Vienna, ÖNB, Cod. 2332 on fol. 223v, in MS Vatican, BAV, Pal. lat. 1396 on fol. 27r[40], in MS Oxford, Bodleian Library, Savile 100 on fol. 3v and in Schöner's *Opera mathematica* on fol. 31v (F1v) (cf. Fig. 6).

According to Šindel's chapter II,1, the semicircle for the Moon (Fig. 3) includes as the largest scale that of angles for reading their sine or cosine (or, in fact, the chords), which are actually needed for the calculations of spherical trigonometry

40 Accessible from: https://digi.ub.uni-heidelberg.de/diglit/bav_pal_lat_1396/0057.

for a solar eclipse. It is complemented by a linear scale on the diameter of the semicircle, which enables one to read its sexagesimal parts using a thread with a bead pointer fixed at the common beginning of these scales. We can find these scales depicted in MS Vienna, ÖNB, Cod. 2332, fol. 223r, while in MS Vatican, BAV, Pal. lat. 1396 and in Schöner's print it is included in the figure for the solar eclipse. The next semicircular scale is the equidistant scale of the argument of the Moon, which is outermost in the lunar eclipse figure in MS Vatican, BAV, Pal. lat. 1396, MS Oxford, Bodleian Library, Savile 100 and Schöner's print, but missing in the corresponding figure in MS Vienna, ÖNB, Cod. 2332. It is labeled in signs and degrees in MS Vatican, BAV, Pal. lat. 1396 while in degrees only in Schöner's print, which we follow in our reconstruction. The next pair of scales are the latitude of the moon and its argument. Instead of the latter, the previous scale of argument could be used if the latitude were drawn non-equidistantly. However, the latitude was probably divided equidistantly and its argument distorted correspondingly, as we can see in the solar eclipse figure in MS Vatican, BAV, Pal. lat. 1396 and in Schöner's print. This seemingly complicated construction may have the advantage of better resolution in the vicinity of the nodes, which are more important for the eclipses than the lunar orbit parts for high latitudes. The next scale of digits of lunar eclipse is present in all the aforementioned figures, but Schöner gives them numbers in the opposite direction and recommends subtracting them from twenty-two. The digits of the eclipse of the Moon are defined by the number of twelfth parts of its diameter immersed in the shadow of the Earth, and can be calculated using the formula

$$p = 6\,(\rho_L + \rho_u - b) \,/\, \rho_L,$$

where ρ_L and ρ_u are angular radii of the Moon and the Earth's shadow (*umbra*) at the distance of the Moon, respectively, and b is the angular distance between the centers of the shadow and the Moon approximated by the ecliptic latitude of the Moon's center. The angular radius $\rho_L \approx r_L / R_L$ is in a good approximation inversely proportional to the distance R_L of the Moon (r_L being its radius) and hence its graph in polar coordinates as a function of the argument a (which is the angular distance from the apogee) is also an eccentric circle, if the orbit is taken as the Ptolemaic eccentric or epicycle[41]. The angular radius of the shadow is $\rho_u \approx (r_T - R_L\,\rho_S) / R_L = \rho_L\, r_T / r_L - \rho_S$, where r_T is the radius of the Earth (*Terra*) and ρ_S is the angular radius of the Sun, which is taken as a constant. Up to the small perturbation $\rho_L - \rho_S$, the sum $\rho_L + \rho_u$ is proportional to ρ_L and can be approximated on the instrument by an eccentric circular "equator of the distance of the Moon from the Earth" which touches the concentric circles – the outer "tropic of the Moon" in perigee and the inner one in apogee – just as the ecliptic touches the tropics on the planispherium. Similarly, the inner eccentric "equator of the shadow" and the innermost "equator of decrease and duration" give the threshold when the center of the Moon reaches the full shadow of the Earth and when the

41 If $R \approx \sqrt{(1 - e^2 \sin^2 a)} + e \cos a$, then $1 / R \approx (\sqrt{(1 - e^2 \sin^2 a)} - e \cos a) / (1 - e^2)$.

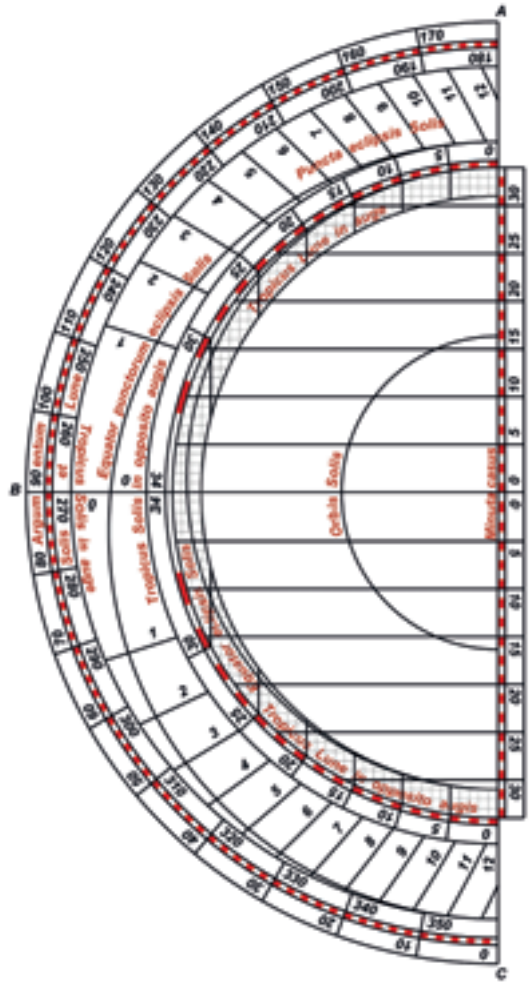

Fig. 4. Reconstruction of the second plate of Šindel's eclipse instrument: figure for calculations of solar eclipses

Moon is completely immersed in it. In the center of the semicircle a thread with beads used as pointers (*almuri*) was fixed (in addition to the aforementioned one for the goniometric functions).

Finally, the semicircular nomogram for the calculation of solar eclipses (Fig. 4) is described in chapter III,11, which is preceded by explanations of the trigonometric calculations needed for solar eclipses but enabled by the scales in the previous nomogram. While the appearance of lunar eclipses is practically identical for all observers on the Earth who can see the Moon above their horizon, the appearance of a solar eclipse is very sensitive to the position of the observer on the Earth. This

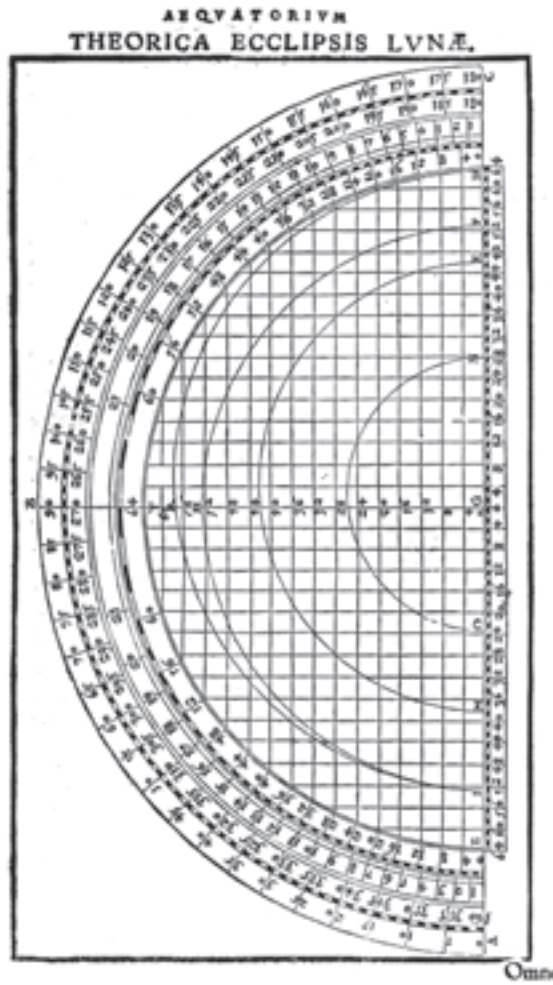

Fig. 5. Aequatorium for calculation of lunar eclipses (IOHANNES SCHÖNER, *Opera mathematica*, Nuremberg, 1551, f. 31v /F1v/)

is because the shadow of the Moon draws a narrow so-called path of totality on the surface of the Earth, from which the solar eclipse can be seen as total. It is hemmed on both sides by wider strips from which the eclipse can be seen as partial, and outside this belt the eclipse is not seen at all. Nowadays, the calculations of solar eclipses determine the motion of the Moon shadow on the Earth, but historical calculations aimed to determine the appearance and timing of the eclipse for a fixed point of observation. This solution must take into account the *diversitatem aspectus* of the Moon, i.e. its daily parallax, which is equal to the angular distance of the observational site from the Earth's center as seen from the Moon, and which is given

by the zenith distance of the Moon[42] and its components in ecliptic coordinates as seen by the observer. This means that in addition to the kinematical calculations of the motion of the *luminaria* with respect to the Earth's center, which are needed for both lunar and solar eclipses, the latter also require calculations based on spherical trigonometry. These can be simplified to a treatment of the position of the points of the ecliptic only if the latitude of the Moon is neglected, which is an acceptable approximation during the eclipse. For instance, the ecliptic latitude b_z of the zenith can then be calculated using the law of cosines[43]

$$\sin a_m = \sin \Delta l \sin b_z$$

in the rectangular triangle formed by the zenith, the ninetieth degree from the ascendant and *medium celi*. Here a_m is the altitude of the *medium celi* above the horizon and Δl is the difference in ecliptic longitude between the two so-called cardinal points, namely the ascendant and the *medium celi*, i.e. the cross-sections of the ecliptic with the horizon and the local meridian[44]. The operation between the angles Δl and b_z (or its complement which is the altitude of the ninetieth degree) on the right-hand side of this formula can be performed using the outermost semicircle in Fig. 3: the length of chord represented by the bead-pointer on the thread stretched from the beginning of the scale to the value of the smaller of these angles (which is actually twice the value spanned with respect to the center of the semicircle) is equal to the sine of this angle in units of the diameter; with the thread rotated to the value of the larger angle, the perpendicular projection of the pointer on the diameter then gives the product on the right-hand side of the formula, from which the angle on the left-hand side can be obtained[45].

According to the description in Šindel's text, and as can be seen in MS Vienna, ÖNB, Cod. 2332, the equidistant scale of argument is outermost on the nomogram for solar eclipses. In Schöner's printed text it is missing by mistake, and instead the scale for the goniometric functions spanning to 90 in the whole semicircle is given twice. The next scale is designed for reading the points of solar eclipse, with which we shall deal in more detail below. It is wide, crossed by an eccentric "equator of the points of solar eclipse". The next scale labels in minutes the latitude of the center of the Moon, up to 34 minutes. Like the figure of the eclipse of the Moon, the inner space of this scale, which corresponds to the angular size of the Moon in perigee, is filled by a rectangular net of lines with inscribed concentric circles of the "tropic"

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42 The daily parallax of the Moon may reach values up to about one degree if the Moon is close to horizon. The value also depends on the instantaneous distance to the Moon, i.e. on its angular distance from the apogee.

43 The same formula can also be obtained from Menelaus's theorem for the intersection of this triangle with the horizon.

44 The positions of the cardinal points which were important for horoscope casting can be calculated by similar simple formulas, or were tabulated.

45 Such a procedure is described in the rule included in chapter III,3 where, however, the meanings of a_m and b_z are interchanged.

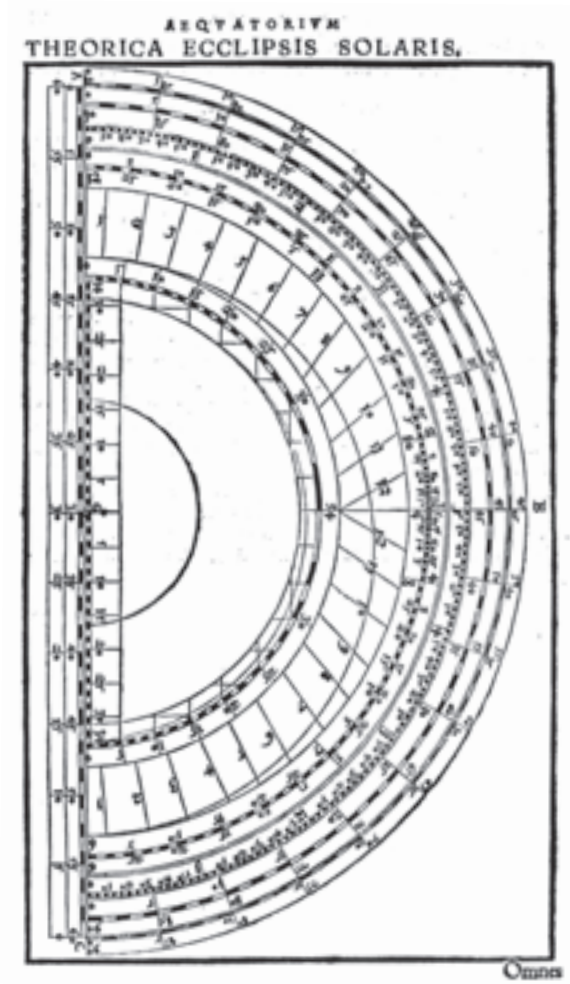

Fig. 6. Aequatorium for calculation of solar eclipses (Iohannes Schöner, Opera mathematica, Nuremberg, 1551, f. 34v /F4v/)

of the Moon in apogee[46], with the innermost circle corresponding to the disk of the Sun, and the eccentric circle of the "equator of the eclipse" touching both tropics[47]. A thread with two beads used as pointers is again fixed at the center of this nomo-

46 Actually the rectangular net is needed in between these two circles only, and is either completely skipped in some drawings (e.g. in Schöner's print) or reduced to parallel lines crossing the scale on the diameter of the semicircle.

47 To be strictly consistent with the model of the eccentric circle, the equator of the eclipse (and similarly the "equators" in the figure of the lunar eclipse) should not be circular, but slightly oblate, with the radius in the perpendicular direction smaller in this case for 0.00024 of its radius in the direction of the line of apsides.

gram. The points of solar eclipse are defined as the number of eclipsed twelfth parts of the solar radius and can be calculated from the formula

$$p = 6\,(\rho_L + \rho_S - b)\,/\,\rho_S,$$

where ρ_L and ρ_S are angular radii of the Moon and the Sun, respectively, and b is the ecliptic latitude of the Moon center (as seen from the observer's site). The radii of the luminaries are functions of their distances $l_{L,S}$ in ecliptic longitude from their apogees. Strictly speaking, the value of p is thus really dependent on all three quantities, which should be used according to the rule provided in chapter III,15. However, the dependence is different from that which the geometry of the nomogram is able to display. Due to the small eccentricity of the annual orbit, the change of ρ_S is negligible, but the same final orientation of the thread can correspond to different combinations of the radius ρ_L and latitude b of the Moon, between which it is necessary to distinguish, again according to the radius of the Moon and not of the Sun as incorrectly written in chapter III,15. Such a calculation of points of eclipse is offered as standard by the tables of solar eclipses where the cases *ad longitudinem longiorem* and *ad longitudinem propiorem* are distinguished for eclipse at apogee and perigee of the Moon, respectively. It is noteworthy that this procedure is correctly described in the original *Albion* of Richard of Wallingford[48], as well as in its version by John of Gmunden[49] and in other words also in MS Vienna, ÖNB, Cod. 2332, fol. 229v, where in the *Canon inventionis quantitatem et durationem eclipsis* it is written:

> Latitudine Lune visa, ut premittitur, inventa puncta eclipsanda et per consequens quantitas eclipsis et minuta casus, et ideo principium et finis et tempus duracionis eclipsis sic poteris reperire: quere enim verum argumentum Lune ad tempus visibilis coniunccionis sive medii eclipsis prius inventum in figura semicirculari eclipsis solaris in zodiaco communi, eiusdem figure numerando sex signa communia secundum ordinem signorum et alia sex signa econtra. Et posito filo centri super (*supra scr. add.:* finem) eiusdem argumenti veri Lune disponas primum almuri super equacionem punctorum et secundum super equatorem tropici solaris et illis duobus almuri sic permanentibus fixis transfer filum in tropico eclipsis solaris.

48 North, *Richard of Wallingford*, I, p. 376, Utilitas 33.

49 MS Vienna, ÖNB, Cod. 5412, fol. 141v (III. 35): "[Q]uantitatem eclipsis solaris in motu et tempore […] reperire. Quod si placuerit, revolve rotam ad caput limbi primi ita, quod tropicus eclipsis solaris correspondeat medietati prime limbi primi secundum successionem signorum. Deinde filum centri pone super distantiam Lune ab auge; quo facto applica almuri eius ad equatorem eclipsis solaris et alterum almuri ad semicirculum orbis Solis. Deinde pone filum centri super latitudinem Lune visibilem in tropico eclipsis solaris et filo non moto revolve rotam, quousque filum limbi contingens ipsum almuri cadat perpendiculariter super lineam minutorum, et quod fuerit inter filum limbi et centrum rote, sunt minuta eclipsis solaris certissime."

On the other hand, Schöner[50] follows the mistake of rule III,15 and rewrites it in more detail:

> Pone filum centri super argumentum verum Lunae ad visibilem coniunctionem in circulo argumenti Lunae figurae Solis et move almuri primum ad aequatorem eclipsis solaris. Deinde pone idem filum super argumentum Solis ad coniunctionem visibilem vel ad verissimam coniunctionem diebus non aequatis et move secundum almuri in circulo argumenti Solis et Lunae ad aequatorem punctorum eclipsis Solis. Deinde cum filo praedicto pone almuri primum super latitudinem Lunae visibilem in tropico Lunae et almuri secundum, scilicet argumenti Solis, cadens inter puncta Solis, ostendit numerum, quem si a 12 subtraxeris, remanebunt partes obscurationis. (Schöner again numbered the points in the opposite direction.)

To summarize the construction and use of Šindel's eclipse instrument and its position among other instruments used in the fifteenth century, we may say that it is basically borrowed from Richard of Wallingford's albion, as also written at the beginning of the treatise's chapter I,1. It omits, among other things, those parts of the albion which were designed for the calculation of planetary motions or fixed stars, dealing with the *luminaria* only. The parts needed for the calculation of eclipses were rearranged, and in addition a scale for corrections due to evection was also included, although its influence is minimal. The inclusion of evection testifies to the effort at a complex treatment of the eclipses.

50 Iohannes Schöner, *Opera mathematica* 1551, fol. 31r (F1r).

Appendix
Critical Edition of Iohannes Šindel's *Canones pro eclipsibus Solis et Lune*

Ratio edendi

The edition was prepared following the transcription rules laid down by Bohumil Ryba[51], which have been used in Czech classical studies for decades. These editorial principles have been further developed by Anežka Vidmanová with a special focus on medieval texts[52].

The text in MS Vienna, ÖNB, Cod. 5415 (siglum *A*) was chosen as the basis of the edition because of its generally better quality when compared to the two other witnesses which is attested by a lower number of scribal errors. However, (a) since there is no clearly discernible stemmatical relation between the three manuscripts, (b) since manuscript *A* also contains mistakes and (c) for the purpose of a better accessibility of the content of the treatise to the readers, we have decided to occasionally use variant readings from the two other manuscripts where the text makes clearer sense. All these variant readings and their use are noted in the apparatus.

In accordance with the aforementioned editorial principles, the spelling of Latin words is left unchanged even if it varies throughout the text and the three manuscripts. This concerns, for example, the inconsistent use of *i* and *y* (e.g. *limbi* × *lymbi*), double versus single letters (*quottam* × *quotam*), inconsistent use of the spelling of *ci-* or *ti-* (*noccium* × *noctium*), and other phenomena (*zenit* × *cenith*; *nihil* × *nichil*; *cognoscere* × *congnoscere*; *Ioannis* × *Iohannis*; *almuri* × *alumri*[53]; *almicantrat* × *almicantarat*). The apparatus of variants does not include these graphical differences. The occasional appearance of *e-caudata* in manuscript *B* (*Lunę*; *umbrę*; *morę*) is not recorded, and nor are the free spaces left by the scribe for later completion of initials (*[V]erum*; *[P]artes*; *[D]igitos*). For greater ease of reading, the edition includes the numbers of the chapters and propositions. Common paleographic abbreviations are transcribed in full, as is customary. Insufficient or obsolete rhetorical punctuation is substituted by logical punctuation, as used in Czech.

Marginalia written in manuscript *C* by a later hand are recorded only exceptionally; they are mostly brief notes by a later user.

There are several identical corrections in manuscripts *A* and *B*: the same words are sometimes underlined by dots (*exp.*): "ibi erit maxima {distancia} [deletion of

51 For the Bohumil Ryba rules, see D. Havel, H. Krmíčková, *Paleografická čítanka. Literární texty* [Paleographical Textbook. Literary texts], Brno, Masarykova univerzita, 2014, p. 89–93.

52 A. Vidmanová, "K vydávání latinských textů české provenience ze 14. a 15. století [On Editing Latin Texts of Czech Provenance from the fourteenth and fifteenth centuries]", in *Husitský Tábor*, 8 (1985), p. 271–283, reprint in J. Matl, Z. Silagiová (eds.), *Laborintus. Latinská literatura středověkých Čech* [Laborintus. Latin Literature of Medieval Bohemia], Praha, Koniasch Latin Press, 1994, p. 36–54.

53 The variant reading *alumri* appears repeatedly in manuscripts *B* and *C*.

the word *distancia* is marked by the dots] diversitas aspectus Solis"; there is another identical error in both mss: "dyametri pars […] divi<di>tur in 34 partes equales".

Angle brackets are used to mark chapter numbers and titles added for ease of reading.

Conspectus siglorum

A MS Vienna, ÖNB, Cod. 5415, fols 133r–141r (c. 1440)
B MS Vienna, ÖNB, Cod. 5412, fols 161r–169r (XV$^{mid.}$)
C MS Nuremberg, Stadtbibliothek (SB), Cent. V. 58, fols 116vb–121va (XV$^{mid.}$)

Conspectus abbreviationum

add. = *addidit* (added)
al. m. = *alia manus* (by another hand)
corr. in = *correxit in* (corrected to)
del. = *delevit* (deleted, removed)
exp. = *expunxit* (added a dotted underline)
in mg. = *in margine* (in the margin of the folio)
om. = *omisit* (omitted)
per err. = *per errorem* (by mistake, erroneously)
suprascr. = *suprascripsit* (written above)

<Iohannes Schindel>
<Canones pro eclipsibus Solis et Lune>

Canones pro eclipsibus Solis et Lune per instrumentum ad hoc factum inveniendis Magistri Iohannis Schindel

<I Pars prima>

<I,1> *Partes instrumenti circulosque et lineas pro sequentibus facilius intelligendis nominatim discutere:*

Hoc instrumentum, quod extractum est ex albione, habet duas partes. In prima eius parte tractabitur de vera coniunccione vel opposicione et veris locis luminarium presupposita media coniunccione vel opposicione et mediis motibus luminarium ad ipsam usque adequacionem dierum eius inclusive. In secunda autem parte eius tractabitur de quantitate eclipsis Solis et Lune principioque et fine et duracione eius.

Notandum igitur, quod in medio prime faciei prime partis instrumenti super centrum eius inscribitur circulus lunacionum divisus in 24 partes. Secundo ab eodem circulo lunacionum incipientes describuntur 24 hore per lineas arcuales terminate in circulo longitudinis inter Solem et Lunam. Tercio inscribitur circulus ecentricus, qui dicitur equator velocitatis Lune, tangens secundum eius intrinsecum circulum lunacionum et secundum extrinsecum circulum longitudinis inter Solem et Lunam. Quarto describitur circulus longitudinis inter Solem et Lunam cum spacio numeri sui, qui extenditur usque ad undecim gradus cum pauco magis, et est circulus lymbi primus. Deinde sequitur circulus limbi secundus, scilicet zodiacus cum spacio 12 signorum et numeris suis. Deinde sequitur tercius circulus yomin, id est equacionis dierum et noccium, cum diebus et noctibus suis cum spacio et numeris suis. Deinde sequitur spacium cum numeris argumenti Solis, quando ipsum est maius sex signis. Post hoc sequitur circulus quartus argumenti Solis pertinens utrique spacio: interiori, scilicet de quo dictum est, et exteriori, quod spacium exterius est numeri argumenti Solis, scilicet quando ipsum est minus sex signis. Deinde sequitur circulus quintus equacionis argumenti Solis cum spacio numerorum suorum. Post hoc sequitur spacium argumenti Lune, quando ipsum est plus sex signis, cum suis numeris. Deinde sequitur sextus circulus argumenti Lune, post ipsum sequitur spacium cum numeris argumenti Lune, quando ipsum est minus sex signis. Post

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3 Canones… Schindel] *om. C* | **6** lineas] lineas eius *C* | **13** eclipsis] *(del.:* eli*)* eclipsis *(del.:* et Lune*) B*, eclpsis *C* | **16** describuntur] inscribuntur *B* | **25** equacionis] equationum *C* | **33** suis numeris] numeris suis *C* | **34** sextus circulus] circulus sextus *C* | ipsum] quem *C* | **35** argumenti Lune] Lune argumenti *C*

hoc sequitur circulus septimus equacionis argumenti Lune cum spacio et numeris suis. Octavo et ultimo sequitur circulus diversitatis dyametri Lune cum spacio et numeris suis.

<I,2> *Sequitur proposicio secunda.*

Verum locum Solis et Lune ad datam coniunccionem vel opposicionem luminarium mediam cum motibus luminarium mediis similiter datis invenire:

Pone filum instrumenti super argumentum Solis, inventum tempore medie coniunccionis vel opposicionis, numeratum in spacio inferiori versus dextram, si ipsum est plus sex signis, vel numeratum in spacio superiori versus sinistram, si ipsum argumentum est minus sex signis. Et ubi filum ceciderit super circulum equacionis argumenti Solis, ibi ostendit equacionem argumenti Solis, quam adde medio motui Solis tempore medie coniunccionis et cetera, invento, si argumentum fuerit plus sex signis, vel subtrahe, si fuerit minus, et quod provenerit, erit verus locus ad tempus medie coniunccionis vel opposicionis, de quo operatus fueris. Et similiter facies de vero loco Lune, quia tempore medie coniunccionis vel opposicionis nulla est in hoc differencia.

<I,3> *Sequitur proposicio tercia.*

Veram coniunccionem luminarium vel opposicionem invenire:

Verorum motuum luminarium per precedentem habitorum subtrahe minorem de maiori et residuum vocetur longitudo illius luminaris, cuius motus fuerit maior, et servetur signeturque, cuius fuerit longitudo. Deinde, si placet, adde ad argumentum tempore medie coniunccionis et cetera inventum medietatem longitudinis, si ipsa fuerit Solis, vel ab eo subtrahe, si longitudo fuerit Lune. Post hoc pone filum in circulo zodiaci secundo super argumentum predictum et transfer almuri super equacionem velocitatis Lune. Deinde pone filum in circulo longitudinis, scilicet primo super longitudinem, quam servasti, et considera almuri, super quam horam et quottam partem eius ciderit. Quod poteris scire per modum, qui fit, dum gradus Solis cadit inter duo almicantrat, quia iste hore sunt inter mediam coniunccionem et veram. Adde igitur eas ad mediam coniunccionem et cetera, si longitudo fuerit Solis, vel subtrahe, si longitudo fuerit Lune, et inde productum est tempus vere coniunccionis vel opposicionis.

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39 Sequitur… secunda] Propositio secunda *B, om. (al. m. add. in mg.:* secunda*) C* | **41** mediam] media *B* | **43** vel opposicionis] etc. *C* | **47** motui] motu *C* | **49** locus] motus Solis *C* | **53** Sequitur… tercia] *om. (al. m. add. in mg.:* tercia*) C* | **58** argumentum] argumentum *(al. m. add. in mg.:* Lune*) C* | **62** equacionem] equatorem *C* | **66** iste] ille *C*

<I,4> *Sequitur proposicio quarta.*

Partes et circulos secunde faciei prime partis instrumenti pro facilius intelligendis sequentibus declarare:

Unde notandum, quod in altera facie huius prime partis instrumenti sunt septem circuli, quilibet cum spacio et numeris suis. Primus, qui est versus centrum instrumenti, est circulus argumenti latitudinis Lune cum spacio et numeris suis. Secundus est circulus minutorum proporcionalium et extenditur tantum ad minutum unum, quia infra hoc tempus non possunt esse minuta proporcionalia plura. Tercius circulus est medii motus Solis cum spacio et numeris suis extensus tantum ad 24 minuta et 30 secunda, quia Sol non potest plus moveri infra distanciam medie coniunccionis vel opposicionis a vera. Quartus circulus est equacionis centri cum spacio et numeris suis extensus usque 2 gradus et 6 minuta, quia maior equacio centri in tempore predicto nequaquam accidere potest. Quintus circulus est argumenti medii Lune cum spacio et numeris suis, qui non plus nisi ad 7 gradus et 37 minuta extenditur propter causam predictam. Sextus circulus est medii motus Lune cum spacio et numeris suis extensus usque ad 7 gradus et 41 minuta. Septimus circulus est horarum, qui extenditur in 24 hore, quia plures hore inter veram coniunccionem et mediam vel opposicionem veram et mediam non contingunt.

<I,5> *Sequitur proposicio quinta.*

Veram coniunccionem vel opposicionem per terciam huius habitam examinare:

Pone filum super horas differencie vere coniunccionis et medie et hoc in septimo seu ultimo circulo secunde faciei instrumenti et sub filo in primo circulo accipe argumentum latitudinis Lune medium. Et in secundo minuta proporcionalia, si ibi fuerint, et in tercio circulo medium motum Solis, et in 4° equacionem centri Lune, et in quinto medium argumentum Lune, et in sexto medium motum Lune et argumentum latitudinis et medium motum Solis et argumentum Lune et medium motum Lune. Horum inquam quodlibet ex instrumento nunc acceptum addatur suo generi tempore medie coniunccionis invento, si longitudo fuerit Solis. Vel quodlibet horum subtrahatur a suo genere, si longitudo fuerit Lune, et habebis medios motus horum ad veram coniunccionem vel opposi-

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70 Sequitur… quarta] *om. (al. m. add. in mg.:* quarta*) C* | **79** ad] usque ad *C* | 24] 34 *C* | **80** secunda] *om. (suprascr.:* secunda*) C* | distanciam] distancie *(suprascr.:* tempus*) C* | **87** circulus est] est circulus *C* | **88** 24 hore] 24 horas *B*, 14 horas *C* | hore] hore fere *C* | veram] *om. C* | et mediam] *om. C* | **89** veram et mediam] *om. C* | **90** Sequitur… quinta] *om. (al. m. add. in mg.:* quinta*) C* | **94** ultimo] secundo *AB* | **100** nunc] tunc *B* | **101** generi] gradui *(in mg. corr. in:* generi*) B* | **103** coniunccionem vel opposicionem] oppositionem vel coniunctionem *C*

cionem predictam, de quo operatus fueris. Hiis habitis quere medium motum Solis, ut dictum est in secunda huius. Deinde equacionem centri adde ad argumentum Lune medium, si centrum fuerit minus 6 signis, vel subtrahe, si fuerit plus, quod scire poteris subtrahendo medium motum Solis a medio motu Lune, et residuum duplando, et quod post addicionem vel subtraccionem provenerit, erit argumentum Lune equatum, cum quo quere equacionem argumenti, ut verum locum Lune possis habere, ut in secunda huius dictum est. Potes eciam, si habueris minuta proporcionalia, quod quantum ad presens non potest esse, nisi unum, accipere dyametri diversitatem in circulo ultimo prime faciei instrumenti et eius 60 ad equacionem argumenti Lune et cum ea loco alterius operari et sic habebis verum locum Lune equatissime. Et si equacionem argumenti Lune addidisti ad medium motum Lune, adde eam eciam ad argumentum latitudinis Lune tempore vere coniunccionis inventum vel subtrahe, si subtraxisti, et habebis argumentum latitudinis Lune equatum ad tempus vere coniunccionis predictum. Nunc igitur vide, si vera loca luminarium, que iam invenisti, sunt directe simul vel directe ex opposito, tunc tempus illud, ad quod invenisti veram coniunccionem vel opposicionem, est tempus verissime coniunccionis vel opposicionis et cetera. Si vera loca luminarium tunc inventa discordent, tunc vide longitudinem, ut prius, et cuius ipsa fuerit et cum ea, ut in tercia huius dictum est, operare, donec invenias loca luminarium omnimode concordare, quia sic habebis tempus coniunccionis vel opposicionis verissime diebus non equatis.

<I,6> *Sequitur proposicio sexta.*

Tempus coniunccionis vel opposicionis verissime, ut predicitur inventum diebus equatis congnoscere:

Pone filum super gradum Solis in zodiaco, qui est secundus circulus prime faciei instrumenti, et nota punctum ibidem. Deinde idem filum pone super gradum Solis in circulo yomin et similiter sub filo fac in zodiaco notam et vide, quot gradus et minuta sunt inter has duas notas. Et pro quolibet gradu accipe quatuor minuta hore et pro quolibet minuto 4 secunda. Et illa minuta et secunda adde ad tempus verissime coniunccionis vel opposicionis habite per precedentem et habebis tempus verissime coniunccionis vel opposicionis diebus equatis. Et amplius hec pars huius instrumenti nobis nichil prodest vel modicum ad eclipses.

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104 medium motum] verum locum *C* | **109** provenerit] pervenerit *A* | **110** equationem argumenti] equacio argumentum *A*, equationem argumentum *B* | **113** dyametri] dyametro *B* | **114** 60] 60 addere *C* | operari] operare *B* | **119** si vera] *(suprascr.:* si*)* vera *B* | **121** opposicionem… cetera] etc. *C* | **122** verissime] vere *B* | vera] vero *C* | **123** tunc] nunc *C* | tunc] *om. C* | ut prius] *om. C* | **124** cuius] eius *B* | est] est est *C* | **126** opposicionis] etc. *C* | **127** Sequitur… sexta] *om. (al. m. add. in mg.:* sexta*) C* | **128** opposicionis] etc. *C* | **137** opposicionis] etc. *C* | pars] pars prima *C*

<II Pars secunda>

<II,1> *Sequitur secunda pars huius operis et primo proposicio prima.*

Circulos et lineas secunde partis huius instrumenti similiter pro sequentibus facilius intelligendis declarare:

Unde notandum, quod secunda pars huius instrumenti habet unam tantum faciem et in ea duas semicirculares figuras, quarum una est pro eclipsi Lune et pro cordis arcuum inveniendis et pro diversitate aspectus invenienda. Secunda figura est pro eclipsi Solis et aliis ad hoc pertinentibus. Primus et maximus semicirculus in figura Lune, scilicet ABC, est arcuum, quem sequitur spacium suum cum numeris suis duplicibus extensis in oppositum usque ad 90. Dyameter vero eius, scilicet AC, est synuum rectorum et versorum arcuum predictorum cum numeris suis similiter duplicibus extensis in oppositas sibi partes usque ad 60 et cetera. Et in puncto C figitur filum lymbi. Deinde sequitur semicirculus argumenti Lune secundus cum duobus spaciis, scilicet exteriori et interiori. In exteriori sunt numeri argumenti, quando ipsum est minus 6 signis incipientes ab A versus C. In interiori vero spacio sunt numeri argumenti, quando ipsum est plus sex signis a C ergo versus A numerati. Post hoc sequitur tercius semicirculus latitudinis Lune, quem sequitur spacium suum cum numero suo, et medietas eius prima incipit ab A et terminatur ad B, qui numerus extenditur usque ad 5 gradus pro latitudine Lune circa caput. Et alius numerus eiusdem spacii incipit a C et terminatur ad B extensus similiter usque ad 5 gradus pro latitudine Lune, dum est circa caudam. Deinde sequitur semicirculus argumenti latitudinis Lune quartus cum duobus suis spaciis, in cuius exteriori spacio inscribitur numerus argumenti latitudinis Lune, dum ipsum est minus 6 signis, incipiens ab A versus C. In interiori vero spacio inscribitur numerus argumenti latitudinis, dum ipsum est maius sex signis, numeratus in contrarium primi. Post hoc sequitur spacium semicirculi punctorum eclipsis Lune, quintus, in cuius spacii medietate inscribuntur numeri punctorum incipientes a B terminati in 21 ad A et in reliqua medietate similiter inscribuntur numeri punctorum incipientes a B terminati in 21 ad C. Quod spacium sequitur semicirculus punctorum divisus in puncta predicta in utraque eius medietate. Deinde sequitur spacium semicirculi tropici Lune, in cuius una medietate ab A incipiente inscribitur numerus minutorum latitudinis Lune infra eclipsim extensus ad 63 minuta et 36 secunda ad B

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140 Sequitur… prima] *om. (al. m. add. in mg.:* septima*) C* | **143** unam… faciem] duas facies *AB* | **145** diversitate] diversitate *(del.:* inven*) A* | **146** invenienda] invenienda etc. *C* | **151** et cetera] *om. C* | **155** In] *om. C* | **161** usque] *om. C* | **169** medietate] mediate *(corr. in:* medietate*) C* | **171** semicirculus] semicirculorum *A* | **173** numerus] numerus *(exp.:* punctorum*) A* | **174** minuta] *om. B*

terminatus. Et similiter eadem minuta latitudinis inscribuntur in altera medietate spacii predicti a C incipiencia et ad B similiter terminata. Post quod spacium sequitur semicirculus eius divisus in minuta predicta, qui eciam semicirculus secundum suam interiorem circumferenciam dicitur tropicus Lune, dum ipsa est in opposito augis epicicli, et sequens circulus versus centrum sibi concentricus est tropicus Lune, dum ipsa est in auge epicicli. Semicirculus autem ecentricus 8^{us} inter duos semicirculos iam dictos descriptus incipiens ab extremitate unius et ad extremitatem alterius terminatus, dicitur equator distancie Lune a Terra. Deinde sequitur nonus semicirculus, qui dicitur equator umbre, eciam ecentricus, et illa medietas eius, que est versus A, pertinet ad augem, et altera, versus C, ad oppositum augis. Post hoc decimo et ultimo sequitur semicirculus minimus, qui dicitur equator minutorum casus et more, eciam ecentricus, cuius medietas, scilicet que est versus A, pertinet ad augem et reliqua ad eius oppositum. Ultimo sequitur filum centri infixum in altera linearum spacii cordarum, in illa scilicet, que est versus B, et illud fili punctum est centrum omnium semicirculorum predictorum saltem, qui sunt concentrici. Deinde ab eodem centro fili trahitur semidiameter versus B usque ad circumferenciam interiorem tropici Lune, qui est ad oppositum augis epicicli Lune. Et illa semidyameter dividitur in 64 partes equales, que partes sunt minuta casus et more ad eclipsim Lune, et per has 64 divisiones singulas trahuntur linee transversales ipsam semidiametrum orthogonaliter intersecantes ex utraque parte ad tropicum Lune predictum terminate. Deinde linea spacii cordarum, que est versus B contenta ex utraque parte fili inter filum et tropicum Lune predictum, dividitur similiter in 64 partes et a singulis divisionibus ex utraque parte fili factis trahantur linee perpendiculariter linee cordarum insistentes ad tropicum Lune sepedictum terminate. Sic igitur disponuntur hee tres semidyametri, que sunt inter filum et tropicum predictum, propter faciliorem modum hic querendi, quorum interest.

<II,2> *Sequitur proposicio secunda huius secunde partis.*

Quantitatem semidyametrorum umbre et Lune in omni eius elongacione ab auge epicicli cognoscere:

Pone filum centri super argumentum Lune equatum in figura eclipsis Lune, deinde transfer unum almuri super equatorem distancie Lune

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176 predicti] predicti et *C* | **180** ipsa] *om. C* | **182** et] *om. AB* | **183** terminatus] *om. AB* | **188** scilicet] similiter *C* | **189** centri] centro *A* | **190** spacii] spacium *B* | **197** semidiametrum] dyametrum *AB* | **200** similiter] semidyameter *AB* | et] et per *AB* | divisionibus] divisionis *B* | **201** trahantur] trahuntur *AB* | **204** modum] modum ea *C* | **205** Sequitur… partis] Propositio secunda huius secunde partis *B*, *om. (al. m. add. in mg.:* octava*) C*

a Terra et secundum almuri super equatorem umbre, post hoc pone idem filum super lineam minutorum casus et more et minuta inter duo almuri cadencia sunt minuta semidyametri umbre.

<II,3> *Sequitur proposicio tercia.*

Latitudinem Lune per datum argumentum latitudinis cognoscere:

Pone filum super argumentum latitudinis Lune per quintam primi huius notum et cadet idem filum super latitudinem Lune in circulo latitudinis Lune.

<II,4> *Sequitur proposicio quarta huius secundi.*

Quantitatem eclipsis Lunaris per quantitatem semidyametrorum umbre et Lune et per notam Lune latitudinem congnoscere:

Pone filum centri super argumentum Lune et transfer almuri super equatorem distancie Lune a Terra. Deinde pone idem filum super latitudinem Lune in tropico eclipsis Lunaris et vide, ubi almuri tangat aliquam lineam vel spacium et minuta existencia inter almuri et centrum fili sunt quantitas medietatis eclipsis. Et illa minuta faciliter ostendit numerus minutorum casus et more, quod tangit linea ab almuri descendens versus ipsum.

<II,5> *Sequitur proposicio quinta.*

Minuta casus et minuta more dimidie seorsum congnoscere:

Pone filum centri super argumentum Lune et transfer primum almuri super equatorem distancie Lune a Terra et almuri secundum super equatorem minutorum casus et more. Deinde pone idem filum super latitudinem Lune in tropico eclipsis Lunaris et vide, si linea perpendicularis, quam tangit almuri primum, secet semicirculum, qui est equator minutorum casus et more, tunc erit mora. Sin autem non quod si ipsum equatorem secuerit, tunc minuta existencia inter almuri predictum et semicirculum sunt minuta casus. Deinde eandem latitudinem Lune computa cum secundo almuri incipiendo a linea cordarum et minuta existencia inter almuri secundum et dyametrum exeuntem a centro versus B sunt minuta more dimidie et cetera.

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212 sunt] sunt semidiameter Lune et residuum ab almuri 20 usque ad centrum sunt *C* | **213** Sequitur… tercia] Propositio tertia *B, om. (al. m. add. in mg.:* nona*) C* | **218** Sequitur… secundi] Propositio quarta *B, om. (al. m. add. in mg.:* decima*) C* | **228** Sequitur… quinta] Propositio quinta secunde partis *B, om. (al. m. add. in mg.:* undecima*) C* | **229** dimidie] deinde *C* | **231** almuri] *om. C* | **240** et cetera] *om. BC*

<II,6> *Sequitur proposicio sexta.*

Digitos eclipticos dyametri Lunaris congnoscere:

Pone filum centri super argumentum Lune et transfer almuri super equatorem distancie Lune a Terra. Deinde idem filum pone super latitudinem Lune in tropico eclipsis Lunaris et cadet filum super numerum punctorum eclipsis in semicirculo punctorum eclipsis Lune.

<III Pars tertia>

<III,1> *Sequitur de eclipsi Solis alia pars et primo sequitur proposicio prima.*

Synum rectum cuiuslibet arcus dati congnoscere:

Pone filum lymbi super arcum datum in semicirculo cordarum et ibidem situetur almuri. Deinde transfer idem filum super lineam cordarum et almuri ostendit numerum graduum et minutorum sinus quesiti a radice fili computando. Et hoc est, si arcus datus fuerit minus 90 gradus; si vero plus 90 fuerit, tunc illud, quod est ultra 90, computa econverso ab A versus B et pone ibidem almuri. Deinde transfer filum ad lineam cordarum et almuri ostendit numerum graduum arcus predicti a radice fili computando.

<III,2> *Sequitur proposicio secunda.*

Synum versum cuiuslibet arcus dati notum facere:

Si arcus datus fuerit minus 90 gradus, ipsum ab A versus B computa et super ipsum filum lymbi pone et almuri ibidem applica. Deinde pone filum ad lineam cordarum et tunc almuri ostendit gradus corde verse arcus dati ab A versus C computando. Si vero arcus datus plus 90 fuerit, tunc residui ultra 90 queratur corda recta per precedentem et ipsam super 60 adde et provenit sinus versus arcus dati. Vel sic: Si sinus altitudinis gradus medii celi ducatur in semydyametrum et collectum dividatur per sinum arcus, qui est inter ascendens *(sic)* et gradum medii celi, et tunc exibit sinus altitudinis gradus 90 ab ascendente, qui arcuetur. Ille ergo arcus tolletur de 90 et remanebit arcus, qui est inter zenit et gradum 90^{m} ab ascendente.

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241 Sequitur… sexta] Propositio sexta *B, om. (al. m. add. in mg.:* duodecima*) C* | **248** Sequitur… prima] *om. (al. m. add. in mg.:* Secundus libellus incipit. Prima*) C* | **254** est] est verum *AB* | **257** graduum] gradus *C* | predicti] predictis *AB* | **259** Sequitur… secunda] Propositio secunda *B, om. (al. m. add. in mg.:* secunda*) C* | **261** gradus] gradibus *C* | **263** tunc] *om. C* | **265** ipsam… adde] ipsam *(al. m. add. in mg.:* addatur*)* super 60 *C* | **266** versus] versus versus *C* | **269** qui] qui qui *B* | **271** Vel… qui *(*qui qui *per err. B)* arcuetur… et gradum 900 ab ascendente] *om. C*

<III,3> *Sequitur proposicio tercia huius partis 3.*

Cum noti fuerint gradus ascendens in hora eclipsis et gradus 90 ab ascendente, distanciam eiusdem gradus 90 a puncto zenit per altitudinem gradus medii celi in eadem hora congnoscere:

Scias cordam rectam gradus altitudinis medii celi per primam huius et in filo lymbi pone ibidem almuri. Deinde eciam scias cordam rectam distancie gradus medii celi ab ascendente per eandem et applica hanc cordam ad arcum suum. Deinde a loco almuri prius situato perpendiculariter egrediatur filum vel gnomon, et ubi filum absciderit lineam corde recte, signa punctum, quia ipse est sinus altitudinis gradus 90 ab ascendente, cuius arcum si subtraxeris de 90, residuum erit arcus quesitus. Per ipsum quantitas anguli occidentalis invenitur et ipse est eciam quantitas anguli occidentalis provenientis ex concursu circuli altitudinis et ecliptice super punctum ascendentis.

<III,4> *Sequitur proposicio quarta huius partis tercie.*

Quantitatem arcus circuli altitudinis a sumitate capitum ad quodlibet punctum circuli signorum descendente invenire:

Hec demonstrata est geometrice commento Alberti 35, libro secundo. Operacio vero arismetrica huc est hec: Duc sinum altitudinis meridiane puncti dati in synum arcus distancie puncti dati et ascendentis. Punctum datum voco gradus Lune vel gradus 90^{m} ab ascendente vel huius, de quo intenditur. Et productum divide per sinum arcus zodiaci, qui est inter ascendens et gradus medii celi, et exibit sinus altitudinis

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289/290 This reference is not to the commentary of Albertus Magnus (*The Commentary of Albertus Magnus on Book 1 of Euclid's Elements of Geometry*, ed. A. Lo Bello, Boston, Brill, 2003), but to the *Almagesti minor* II. 35, as revealed by Henry Zepeda, cf. https://ptolemaeus.badw.de/ms/2/transcription/5/1#82v, and H. Zepeda, *The First Latin Treatise on Ptolemy's Astronomy: The Almagesti minor (c. 1200)*, Turnhout, Brepols, 2018. References to Albertus Magnus (actually to the *Almagesti minor*) are also contained in Šindel's marginal notes to his copy of Ptolemy's *Almagest,* which is now preserved in the Jagiellonian Library in MS Cracow, BJ, 619, e.g. on fols 69v, 111r–v, 118r, 120r, 126r, 126v, 134v etc. The text of the *Almagesti minor* II,35 shows on the basis of Menelaus's theorem that the sine of altitude above the horizon of a point of the ecliptic is given by the product of the sine of its distance in longitude from the ascendant multiplied by the sine of the altitude of the *medium caeli* divided by the sine of the arc between the *medium caeli* and the ascendant.

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272 Sequitur… 3] Propositio tertia huius partis tertie *B*, *om. (al. m. add. in mg.:* tercia*) C* | **273** fuerint] fuerunt *C* | **280** gnomon] gnomo *AB* | **282** si] *om. (al. m. add.) C* | Per… invenitur] *om. C* | **284** concursu] cursu *(al. m. add.:* con-*) C* | **286** Sequitur… tercie] Propositio quarta huius tertie *B*, *om. C* | **288** descendente] descendentis *C* | **290** huc] huius *C* | **292** Lune vel gradus] *om. C*

puncti dati, cuius arcum, si de 90 subtraxeris, resultabit arcus circuli altitudinis inter zenith et punctum datum contentus, qui queritur.

<III,5> *Sequitur proposicio quinta huius tercii.*

Diversitatem aspectus Solis et Lune in circulo altitudinis date ad tempus eclipsis Solaris congnoscere:

Si placet, applica filum centri ad lineam minutorum casus et more et pro diversitate aspectus Solis situa almuri primum super maximam diversitatem aspectus Solis, que est 2 minuta 52 secunda computando a centro semper pro sex minutis 30 secundis fere et secundum illum modum cadet almuri Solis super 34 minuta casus et 25 secunda fere et ibi erit maxima diversitas aspectus Solis 2 minuta et 52 secunda. Et pro diversitate aspectus Lune pone secundum almuri super 64 minuta, deinde pone idem filum centri super lineam cordarum, hoc est super principium circuli argumenti Lune, et ipsum filum move versus lineam minutorum in circulo argumenti Lune secundum quantitatem distancie gradus Lune a zenit note per 4^{am} huius et super quam lineam de lineis transversalibus intermediis orthogonaliter lineam minutorum casus et more secantibus almuri pro Sole locatum ceciderit, illa linea in linea minutorum casus ostendit numerum diversitatis aspectus Solis presentem computando a radice fili, ut prius, scilicet capiendo per 6 minutis casus 30 secunda vel pro quolibet minuto casus 5 secunda. Et similiter super quam lineam de lineis intermediis predictis almuri pro Luna locatum ceciderit, illa linea in linea minutorum casus ostendit numerum diversitatis aspectus Lune in circulo altitudinis computando a radice fili simpliciter, secundum quod ibi minuta scribuntur. Deinde subtrahe diversitatem aspectus Solis iam inventam de diversitate aspectus Lune iam inventa et residuum pro diversitate aspectus Lune in circulo altitudinis tene et cum ea, ut inferius docebitur, operare.

<III,6> *Proposicio 6^{a}.*

Quantitatem anguli occidentalis super datum punctum ecliptice ex concursu circuli altitudinis cum ecliptica constituti per notam distanciam gradus 90^{i} ab ascendente a cenith congnoscere:

Pone almuri in filo lymbi super cordam distancie gradus 90^{i} ab ascendente a zenit note per terciam huius, deinde applica idem filum super ar-

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297 Sequitur… tercii] *om. (al. m. add. in mg.:* quinta*) C* | **300** Si placet] *om. C* | **301** pro diversitate] per diversitatem *AB* | **302** 52] et 52 *C* | **303** fere] *om. C* | **304** maxima] maxima *(exp., del.:* distancia*) AB* | **306** pone] *om. C* | **307** super] *om. AB* | **308** et… Lune] *om. AB* | **312** numerum] minuta *C* | **313** presentem] presentes *C* | **314** per] pro *C* | secunda] *om. AB* | vel] vel vel *A* | **316** in linea] *om. AB* | **317** ostendit] ostendet *B* | **318** simpliciter] similiter *A* | **322** Proposicio sexta] *om. (al. m. add. in mg.:* sexta*) C*

cum distancie puncti dati in ecliptica a zenit note per quartam huius, deinde ab almuri prius locato perpendiculariter egrediatur filum vel gnomon versus lineam cordarum et ubi filum vel gnomon absciderit lineam cordarum, ipsum est corda recta arcus cuiusdam, qui est quantitas anguli quesiti. Vel sic: Si sinus distancie zenit capitis a gradu 90 ab ascendente multiplicatur per semidyametrum et productum dividatur per distanciam gradus dati a zenit, exibit synus arcus anguli constituti super illud punctum ex ecliptica et circulo altitudinis.

<III,7> *Sequitur proposicio septima huius tercii.*

Diversitatem aspectus Lune in longitudine et latitudine invenire:

Pone almuri in filo centri in linea minutorum casus super diversitatem aspectus Lune in circulo altitudinis, notam per quintam huius, et transfer idem filum in eadem quarta in circulo argumenti Lune, qui est tunc loco zodiaci recedendo a linea minutorum casus, scilicet AB, secundum quantitatem arcus anguli dati per precedentem noti et super quam lineam de lineis intermediis orthogonaliter lineam minutorum casus secantibus almuri ceciderit, illa linea ostendit in linea minutorum casus numerum minutorum diversitatis aspectus Lune in longitudine. Si vero computaveris arcum anguli predicti in eadem quarta semicirculi in circulo argumenti Lune predicto in contrarium a linea cordarum, scilicet AC, vel ab A versus lineam minutorum casus, scilicet versus B, tunc super quam lineam de lineis transversalibus predictis almuri ceciderit, illa linea ostendit in linea minutorum casus numerum minutorum diversitatis aspectus Lune in latitudine verissime. Unde per hunc modum poteris corrigere, ymmo et de novo formare tabulas diversitatis aspectus Lune et forte convenit, ut totiens opus resumas, donec diversitas aspectus Lune in longitudine sequens concordet cum precedenti.

<III,8> *Sequitur proposicio octava huius partis tercie.*

Tempus et horam coniunccionis visibilis invenire etc.:

Divide minuta diversitatis aspectus Lune in longitudine in superationem Lune in una hora et productum adde ad tempus vere coniunccionis diebus equatis, si inter ascendens et locum coniunccionis fuerint plures gradus quam 90, vel subtrahe, si fuerint pauciores, et quod post addicionem vel subtraccionem provenerit, erit tempus coniunccionis visibilis.

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329 gnomon] gnomo *B*, gnoman *C* | **335** Vel… exibit synus… ecliptica… altitudinis] Vel… exibit sinus… eclyptica… altitudinis *B*, *om. C* | **336** Sequitur… tercii] Propositio septima *B*, *om. (al. m. add. in mg.:* septima*) C* | **341** est tunc] tunc est *B* | **342** precedentem] precetentem *C* | **345** Si… predicto] Si… predicta *A*, Si vero computaveris arcum anguli predicti *B* | **355** Sequitur… tercie *A*] Propositio octava huius tertie partis *B*, *om. (al. m. add. in mg.:* octava*) C* | **356** etc.] *om. C* | **357** in] per *C*

<III,9> *Sequitur proposicio nona.*

Verum locum luminarium ad coniunccionem visibilem congnoscere:

Minuta diversitatis aspectus Lune in longitudine cum sui 12 super locum vere coniunccionis diebus equatis adde, si inter ascendens et locum vere coniunccionis plures quam 90 gradus fuerint, vel subtrahe, si fuerint pauciores, et habes intentum et cetera.

<III,10> *Sequitur proposicio decima huius partis tercie.*

Latitudinem Lune visibilem ad horam coniunccionis visibilis congnoscere:

Scias primo veram eius latitudinem ad idem tempus per terciam huius secundi et eius partem, tunc si latitudo Lune et diversitas aspectus Lune in latitudine in eandem partem fuerint, eas in unum collige, si vero in diversis fuerint partibus, subtrahe minorem de maiori et residuum erit latitudo Lune visa ad medium eclipsis illius partis, cuius ambe simul iuncte fuerant, vel illius partis, cuius erat maior et cetera.

<III,11> *Sequitur proposicio undecima huius partis tercie, credo, quod dicitur esse prima.*

Circulos et lineas figure eclipsis Solaris seorsum discernere:

Primus et maior circulus eclipsis Solaris cum duobus suis spaciis est argumenti Solis et Lune et in spacio exteriori continetur argumentum Solis et Lune, quando ipsum est minus sex signis incipiens a C per B versus A. In interiori autem spacio eius continentur numeri argumenti luminarium, quando ipsum est plus sex signis incipientes e contrario ab A per B versus C. Et inter interiorem huius spacii circumferenciam, que est ad augem Solis, et circulum inferiorem sibi concentricum et proximum, qui est ad oppositum augis, est spacium satis latum, in quo ab utraque parte distinguuntur 12 puncta eclipsis Solis per lineas ab uno eorum ad alterum tractas et dicitur tropicus Solis. Semicirculus autem inter eos eis ambobus ecentricus, qui vadit ab extremitate unius eorum ad extremitatem alterius, est equator punctorum eclipsis Solaris. Deinde post circulum, quem ante dixi inferiorem, concentricum, proximum, sequitur spacium, in quo ab utraque parte similiter inscribuntur minuta

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362 Sequitur… nona] Propositio nona *B, om. (al. m. add. in mg.:* nona*) C* | **364** sui] sua *A* | **367** et cetera] *om. BC* | **368** Sequitur… tercie] Propositio decima huius tertie partis *B, om. (al. m. add. in mg.:* decima*) C* | **371** huius secundi] secundi huius *C* | **372** Lune] *om. C* | eandem partem] eadem parte *C* | **373** maiori] maiore *A* | **375** et cetera] *om. C* | **376** Sequitur… prima] Propositio undecima huius partis tertie, credo, quod dicitur esse prima *B, om. (al. m. add. in mg.:* undecima*) C* | **379** circulus] circulus figure *C* | **382** autem] aut *AB* | **386** qui] que *AB* | **387** lineas] linea *B* | uno] una *AB* | **389** ab] de *C*

latitudinis Lune usque ad 34 extensa. Quod spacium sequitur statim semicirculus latitudinis Lune divisus in 34 partes secundum 34 minuta latitudinis predicta inter cuius circumferenciam interiorem, que est ad oppositum augis epicicli Lune, et inter sibi concentricam circumferenciam proximam, que est ad augem epicicli Lune, continetur tropicus Lune et a singulis divisionibus circumferencie tropici Lune ad oppositum augis trahuntur singule linee ad circumferenciam tropici Lune ad augem ita, ut si in continuum et directum traherentur, semidyametrum a filo versus B exeuntem perpendiculariter secarent. Et iste linee ab una circumferencia ad aliam sunt ut premittitur tracte signant minuta latitudinis Lune. Inter quas circumferencias est alia circumferencia ambabus hiis ecentrica, incipiens ab extremitate exterioris circumferencie circa A et ad extremitatem alterius circumferencie interioris circa C terminata et dicitur equator eclipsis Solaris. Deinde sequitur intimus et minimus semicirculus, qui est orbis Solaris in longitudine eius media, cuius semidyameter est 16 minuta et 20 secunda. Ultimo sequitur filum fixum in centro instrumenti, post quod centrum vadit dyameter AC, cuius dyametri pars inter centrum et circumferenciam tropici Lune ad oppositum augis ex utraque parte contenta dividitur in 34 partes equales, que sunt minuta casus eclipsis Solaris et a singulis divisionibus trahuntur linee perpendiculariter dyametro insistentes et ad predictam circumferenciam tropici Lune ad oppositum augis terminate, quorum minutorum circumferencia tropici Lune ad augem 31 tantum continebit.

<III,12> *Sequitur proposicio duodecima.*

Minuta casus eclipsis Solaris invenire:

Pone filum centri figure Solis super argumentum Lune ad visibilem coniunccionem inventum et transfer almuri ad equatorem eclipsis Solaris. Deinde pone filum super latitudinem Lune visibilem in tropico Lune, qui extenditur usque ad 34 minuta, et hoc in quarta illa, in qua argumentum Lune est repertum, et quot spacia linearum lineam minutorum casus perpendiculariter secancium inter almuri et centrum instrumenti reperies, tot minuta casus in eadem eclipsi Solaris habebis.

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394 34 minuta] minuta 34 *C* | **396** concentricam] concentrica *C* | **397** proximam] *om. B* | **402** sunt] sit *C* | ut] sicut *B* | signant] sint *C* | **403** Inter… Solaris] *om. C* | **408** secunda] *om. C* | **409** post] per *C* | **411** dividitur] divitur *AB* | **415** continebit] continebit. Inter quas circumferencias est alia circumferencia ambabus hiis ecentrica, incipiens ab extremitate exterioris circumferencie circa A et ad extremitatem alterius circumferencie interioris circa C terminata et dicitur equator eclipsis Solaris *C* | **416** Sequitur… duodecima] Propositio duodecima *B*, *om. (al. m. add. in mg.:* duodecima*) C* | **422** quot *Had*] quot sunt *B*, quot *(suprascr.:* sunt*) AC* | **424** reperies] repereris *C* | Solaris *Had*] Solari *ABC*

<III,13> *Sequitur proposicio tredecima huius tercii.*

Inicium et finem eclipsis Solaris tociusque eclipsis duracionem invenire:

Minuta casus per precedentem nota, dividantur per superacionem Lune vel minuta casus cum sui 12, dividantur per motum Lune in una hora et proveniet tempus tocius eclipsacionis. Et si idem tempus, scilicet non duplicatum, ab horis visibilis coniunccionis subtraxeris, horas inicii eclipsis invenies. Et si ipsum idem ad horas visibilis coniunccionis addideris, finem horarum eclipsis habebis et cetera.

<III,14> *Sequitur proposicio quarta decima huius tercii et cetera.*

Verum locum Lune et argumentum latitudinis ad principium et finem eclipsis invenire:

Minuta casus cum sui 12 de loco Lune ad medium eclipsis deme et residuum erit verus locus Lune ad principium eclipsis, quod si eadem minuta cum sui 12 vero loco Lune ad medium eclipsis addideris, verus locus Lune ad finem eclipsis resultabit. Quod si eciam eadem minuta cum sui 12 et cum medio motu capitis Draconis in tempore extracto ex minutis casus demantur de argumento latitudinis ad medium eclipsis, remanet argumentum latitudinis equatum ad principium eclipsis. Si autem hec addantur eidem argumento latitudinis ad medium eclipsis, argumentum latitudinis Lune ad finem eclipsis provenit, per quod latitudinem Lune ad principium et finem eclipsis invenies.

<III,15> *Sequitur proposicio quinta decima.*

Digitos Solaris eclipsis invenire:

Pone filum centri super argumentum Lune et move almuri primum super equatorem eclipsis Solaris, deinde pone idem filum super argumentum Solis et move secundum almuri ad equatorem punctorum eclipsis, deinde cum filo predicto pone almuri primum super latitudinem Lune visibilem in tropico Lune et almuri secundum, scilicet argumenti Solis, cadens inter puncta eclipsis ostendit numerum eorum.

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425 Sequitur… tercii] Propositio tredecima huius tercii *B*, *om. (al. m. add. in mg.:* tredecima*) C* | **426** eclipsis] eclipsacionis *C* | **429** proveniet… eclipsacionis] provenit tempus, quod est a principio eclipsis usque ad medium, quod si duplicaveris, provenit tempus tocius eclipsationis *C* | **431** ad horas] ab horis *AB* | **432** et cetera] *om. BC* | **433** Sequitur… cetera] Propositio decima quarta huius tercii *B*, *om. (al. m. add. in mg.:* quarta decima*) C* | **439** eciam eadem] eadem eciam *C* | **440** medio motu] motus medius *(corr. in:* motu medio*) C* | **444** provenit] proveniet *C* | **445** eclipsis] *om. C* | **446** Sequitur… decima] Propositio quindecima *B*, *om. (al. m. add. in mg.:* quinta decima*) C* | **447** Solaris eclipsis] Solares eclipticos *C* | **451** super] *om. (al. m. add. in mg.) C*

<III,16> *Sequitur proposicio sexta decima huius tercii.*

Semidyametros Solis et Lune tempore medie eclipsis congnoscere, cum quibus eciam puncta eclipsis et minuta casus nota patebunt:

Pone filum centri super argumentum Lune et move primum almuri super orbem Solis et secundum super equatorem eclipsis Solaris, deinde pone idem filum centri super argumentum Solis et move tercium almuri super equatorem punctorum, deinde almuri secundum, scilicet equatoris Solaris eclipsis, pone in tropico Lune super latitudinem Lune visibilem et tercium almuri cadens inter puncta eclipsis ostendit numerum eorum et secundum almuri cadens inter lineas minutorum casus ostendit similiter numerum eorum ab almuri versus lineam a centro exeuntem per lineas minutorum casus transversaliter computando. Deinde pone filum super lineam minutorum casus et illud, quod est inter centrum instrumenti et primum almuri, est semidyameter Solis et illud, quod est inter primum almuri et secundum, est semidyameter Lune et cetera.

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454 Sequitur… tercii] Propositio sedecima huius tercii *B*, *om. (al. m. add. in mg.:* sexta decima*) C* | **461** eclipsis] *om. C* | **462** inter] intra *C* | **465** transversaliter… casus] *om. B* | **466** illud] id *C* | **467** illud] id *C* | **468** et cetera] *om. BC* | *(al. m. add. in mg.:* finiuntur canones, sequencia sunt addita*) A*

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